1.0 Executive Summary

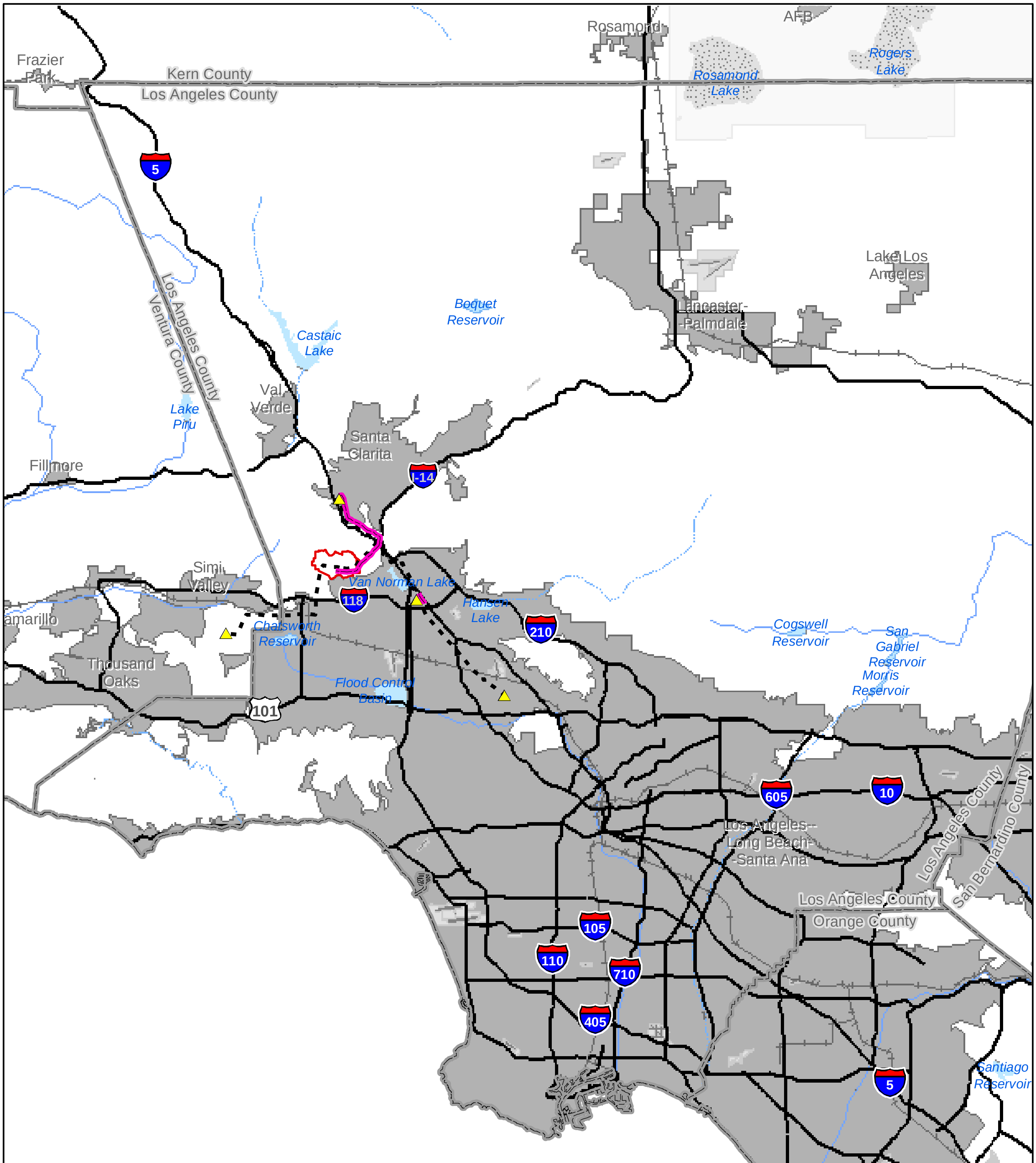
This Proponent's Environmental Assessment (PEA) has been prepared to support the application by the Southern California Gas Company (the "Proponent" or "SoCalGas") to the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity (CPCN) authorizing the development, construction, and operation of the Aliso Canyon Turbine Replacement Project (the "Proposed Project"), which is a planned removal from service of an existing gas turbine-driven compressor (TDC) station located at the Aliso Canyon natural gas storage field (hereinafter referred to as "the Storage Field"), in Northridge, California. The TDCs would be replaced with three variable frequency drive (VFD) compression trains, and installed in a new compressor station (the "proposed Central Compressor Station"). The Proponent's application also requests approval under Section 851 of the Public Utilities Code for the enlargement of an existing SCE electrical easement on SoCalGas property.

SoCalGas has worked with the Southern California Edison Company (SCE) to identify the new and modified SCE infrastructure required to provide electrical service to the proposed Central Compressor Station and other related facilities. The Proponent's application includes a description and analysis of the facilities SCE will construct, including a 56 megavolt ampere (MVA) 66/12 kilovolt (kV) substation (the "proposed SCE Natural Substation") that would be interconnected to the modified SCE 66 kV sub-transmission line to deliver electricity to the proposed Central Compressor Station and other facilities at the site. The proposed SCE Natural Substation will be located within the Storage Field property boundary within an expanded electrical easement on SoCalGas property. In addition, the Proponent's application identifies other SCE facilities that will be modified including portions of two existing SCE 66 kV sub-transmission lines and three existing SCE substations. Modifications to existing SCE lines include structure removal, pole installation and wire re-conductoring and new conductors will be added to a portion of the existing line route; modifications to existing SCE substations include installation of relay systems and some construction at the existing SCE San Fernando Substation. SCE proposes to construct these new and modified electric facilities pursuant to CPUC General Order 131-D (GO 131-D) Exemption F, which provides for an exemption from the CPUC's Permit to Construct (PTC) requirements when such facilities to be constructed have undergone environmental review pursuant to the California Environmental Quality Act (CEQA) as part of a larger project. While this application is SoCalGas's, SCE will be submitting an Advice Letter in connection with GO-131-D Exemption F to construct the new and modified electric facilities required to provide electric service to the proposed Central Compressor Station and other facilities proposed within the Storage Field.

Additional Proposed Project components constructed by SoCalGas within the Storage Field property boundary include the proposed office trailer and guard house relocations, and the proposed Plant Power Line (the "proposed PPL") interconnecting the proposed SCE Natural Substation to the proposed Central Compressor Station. The proposed SoCalGas PPL will provide 12 kV distribution service to the proposed Central Compressor Station. A pre-engineering evaluation will be conducted to determine if the PPL will be above-grade or below-grade as well as to determine the alignment.

As shown on Figure 1-1, the Proposed Project is located within the Santa Susana Mountain range, primarily within unincorporated Los Angeles County. As shown on Figure 1-2, the proposed SCE 66 kV sub-transmission modification, including two existing SCE lines, originates in Newhall, a community within the city of Santa Clarita, and extends through parts of unincorporated Los Angeles County and within the city of Los Angeles, and existing Storage Field property. As shown on Figure 1-3, the proposed Central Compressor Station, proposed office trailer relocation, proposed PPL, proposed SCE Natural Substation, and alignment of the proposed SCE 66 kV sub-transmission line modification that currently traverses the Storage Field will be located within the Storage Field, located within unincorporated Los Angeles County. A portion of the proposed guard house relocation will be within the Storage Field property, within the City of Los Angeles. The three SCE substations (Newhall, Chatsworth and San Fernando Substations) proposed to be modified as part of the Proposed Project are located in Newhall (a community within the incorporated city of Santa Clarita), the Santa Susana unincorporated area of eastern Ventura County), and the Mission Hills community of City of Los Angeles, respectively(see Figure 1-3).

The Proponent is required to implement the Proposed Project in order to meet the terms of Phase I of the Settlement Agreement (SA) between SoCalGas and parties to the 2009 Biennial Cost Allocation Proceeding (BCAP) approved by the CPUC D.08-12-020. The SA requires that SoCalGas replace the TDCs and expand the overall injection capacity at the field by approximately 145 million cubic feet per day (MMcfd). The new VFD motors will provide reliable, efficient, and increased injection capabilities required by the terms of the SA.



Legend

- Existing SCE 66 kV Alignment
- Proposed SCE 66 kV Modification
- Existing Substation
- Storage Field Property Boundary

N W E S

1 inch = 10 miles

0 10 20 Miles

Aliso Canyon PEA

Figure 1-1
Regional Map

Southern California Gas Company A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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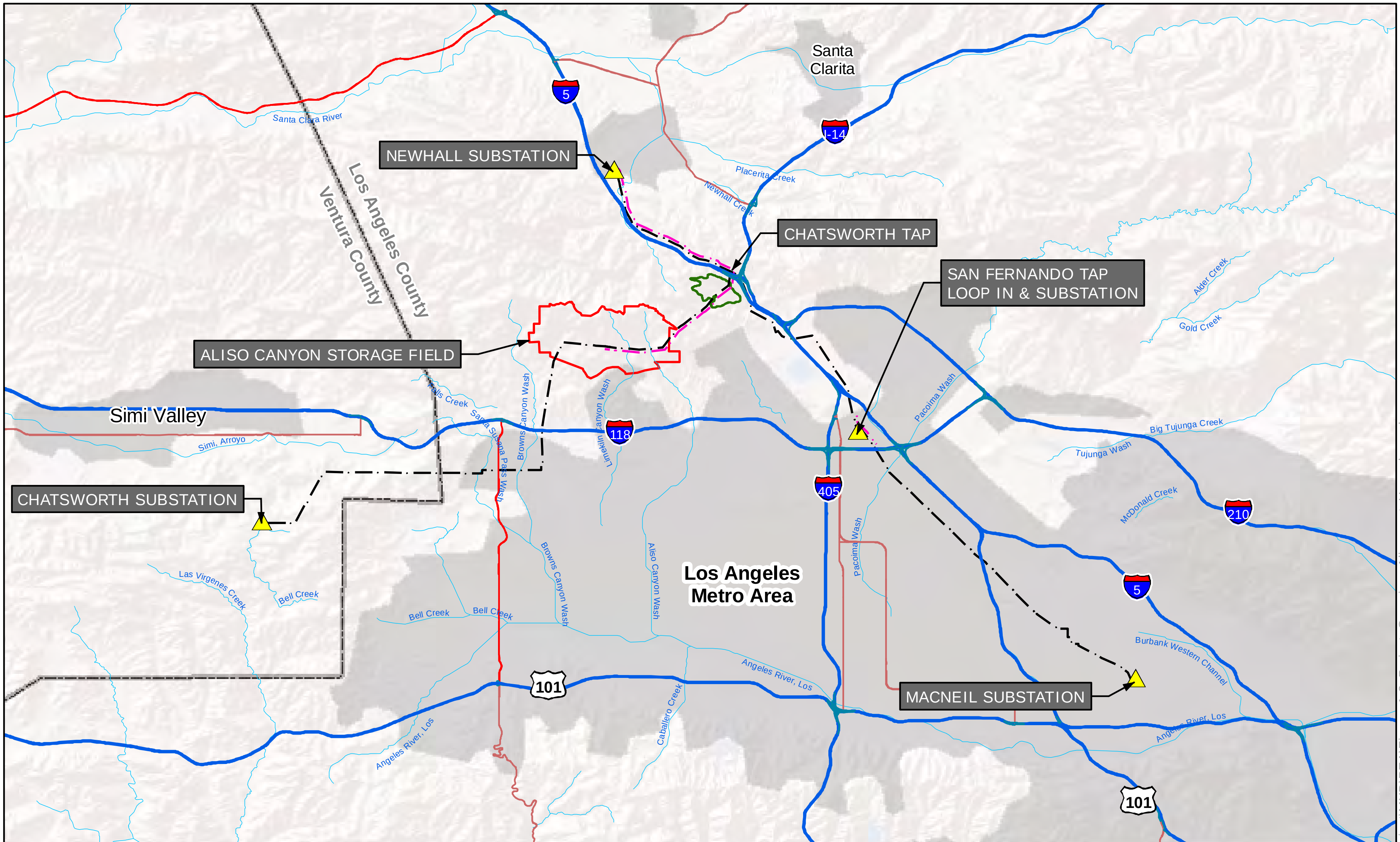
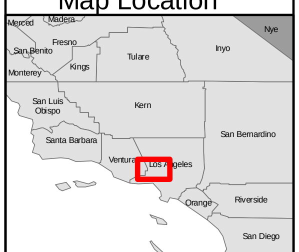


Map Location



Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Sunshine Canyon Landfill
- Existing Substation
- Storage Field Property Boundary
- counties

1 inch = 4 miles

0 3 6 Miles

Aliso Canyon PEA

Figure 1-2 Project Overview
Storage Field and Existing
SCE 66 kV Sub-transmission Lines

Southern California Gas Company — A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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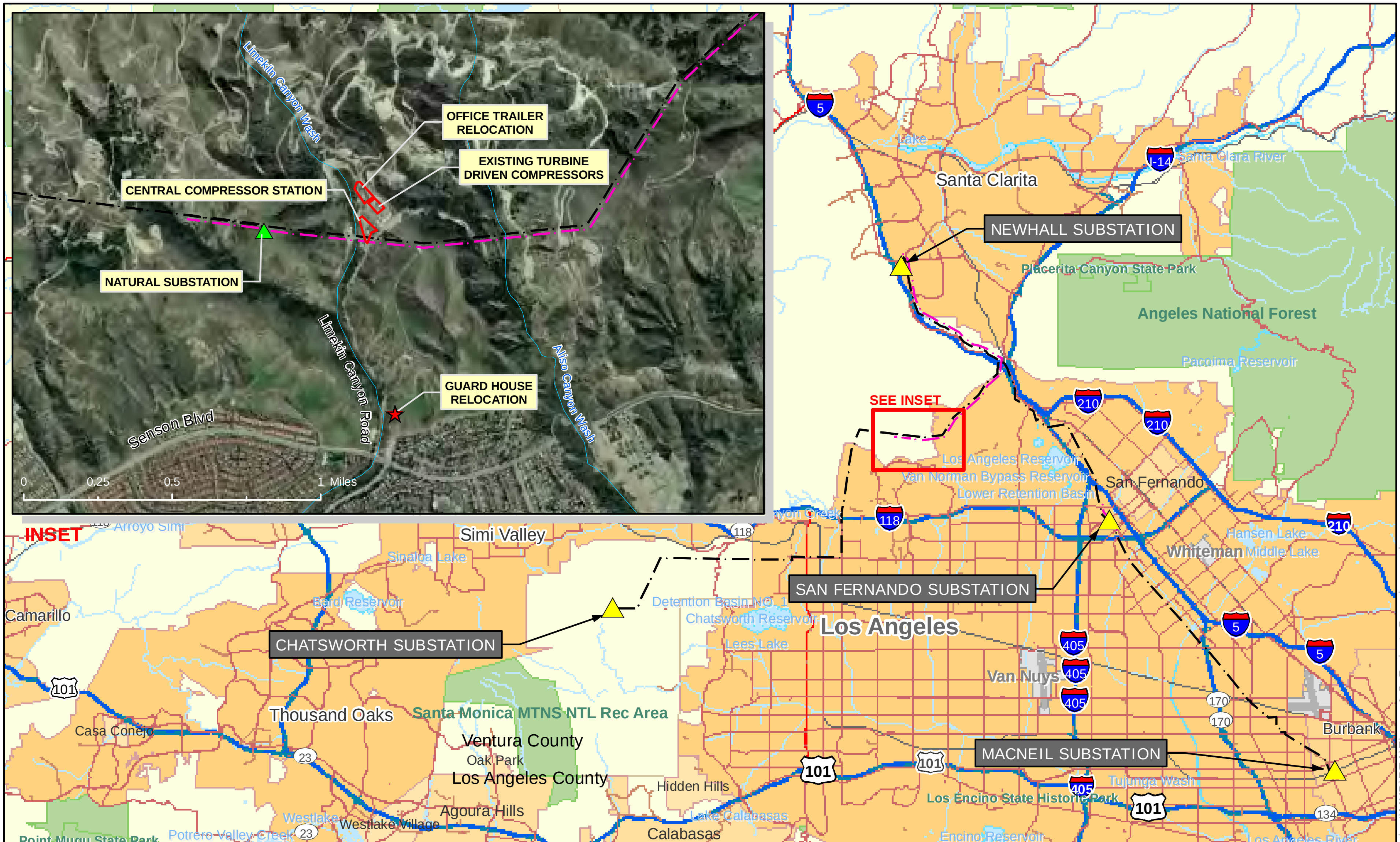
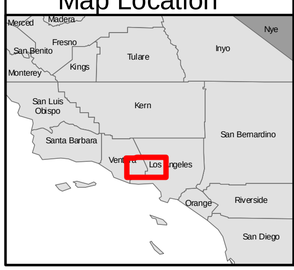


Map Location



Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Guard House Relocation Site
- Proposed Substation Location
- Existing SCE Substations

1 inch = 4 miles

0 3 6 Miles

N W E S

Aliso Canyon PEA

Figure 1-3
Project Overview
Proposed Project Components within the Storage Field

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Primary Proposed Project Components

The primary Proposed Project components are provided below:

1. Construct the proposed on-site Central Compressor Station and install new equipment including three VFD compressor trains, compressors, piping, coolers, and other additional equipment required.

2. Relocate on-site office trailer facilities and on-site guard house; the existing trailers will be replaced by new trailers at a site in proximity to the proposed Central Compressor Station. The guard house will be relocated approximately 500 feet north of the existing facility to relieve traffic congestion at the facility entrance.

3. Construct a new on-site four circuit, 12 kV PPL that will provide dedicated electric services to the proposed Central Compressor Station. The proposed PPL will be interconnected from the proposed SCE Natural Substation to the proposed Central Compressor Station. The PPL will be owned by SoCalGas and designed to San Diego Gas and Electric (SDG&E) standards.

4. Construct the proposed on-site SCE Natural Substation including foundation and equipment pads, electrical equipment, installation of security perimeter wall/chain link fence, access road, and capacitor bank (additional elements may be included in the proposed SCE Natural Substation construction). The proposed SCE Natural Substation will be 56 MVA, 66/12 kV with a pre-fabricated mechanical electrical and engineering room (MEER). This project component will be constructed by SCE.

5. Construct both on-site and off-site electric modifications to two existing SCE 66 kV sub-transmission lines in order to serve the proposed Central Compressor Station's load. The two existing sub-transmission lines will be re-conductored from the Newhall Substation to one pole past the Chatsworth tap point (see Figure 1-2); a third line will be installed at the Chatsworth tap point, within existing ROWs and easements, to the proposed SCE Natural Substation. Modifications will also include replacement of existing towers and H-frame structures with new tubular steel poles (TSP), and installation of telecommunication lines on the poles. This project component will be constructed and owned by SCE.

6. Conduct off-site substation modifications at three existing SCE substations (Newhall, Chatsworth, and San Fernando Substations) that support two existing SCE 66 kV sub-transmission lines. Proposed modifications include: construction of a loop-in interconnection at San Fernando to provide for two new positions; and, installation of new relay systems and ancillary equipment within the substation, to provide advanced electrical service protection. This project component will be constructed and owned by SCE.

Environmental Impacts

All impacts from operation of the Proposed Project either have no impact or are less than significant without any required mitigation. For construction activities, the Proponent does not anticipate a significant environmental impact with incorporation of mitigation measures during construction that have been recommended for the following resources areas: Air Quality and Biological Resources. A discussion of the potentially significant impacts and appropriate mitigation measures designed to reduce impacts below California Environmental Quality Act (CEQA) significance thresholds is provided in Chapter 5. A brief summary of potential impacts and mitigation measures is presented in Table 1-1.

Table 1-1 Summary of Potentially Significant Impacts

Impacts	Mitigation Measure	Impacts with Mitigation
Air Quality		
Construction could result in an exceedance of nitrogen oxide (NO_X) emissions above the CEQA threshold.	Prior to construction, the Proponent will purchase Regional Clean Air Incentive Market (RECLAIM) Trading Credits (RTCs) for each pound of NO_X emissions over the threshold. The Proponent will also be required to implement a mitigation monitoring plan to monitor and track daily emissions and fuel usage.	Less than significant
Biological Resources		
Construction could result in impacts to native habitat including Venturan coastal sage scrub.	A Habitat Restoration Plan will be prepared, detailing plans to replant and/or seed impact areas. The plan will include planting and seeding palettes and a monitoring and contingency program to ensure the success of the restoration effort.	Less than significant

Major Conclusions of the PEA

With the implementation of mitigation measures, there are no anticipated significant environmental impacts from the Proposed Project. SoCalGas has proposed measures that are designed to avoid and minimize potential environmental impacts. Applicant proposed measures (APMs) include best practices, permit and regulatory requirements, and compliance measures. APMs are discussed in each applicable resource area and provided in summary in Chapter 5. There were no major issues identified during the resource area evaluation that would require implementation of reasonably feasible alternatives. The Proposed Project has been designed to minimize environmental impacts while meeting the Proposed Project needs and objectives. The PEA supports the conclusion that a Mitigated Negative Declaration under the California Environmental Quality Act is appropriate for the Proposed Project.

Regulatory and Permit Requirements

This PEA has been developed pursuant to the checklists provided by the CPUC in order to meet CPUC and CEQA guidelines for gas storage projects and electrical transmission and substation projects. This PEA has been prepared in order to submit an application for a CPCN, pursuant to CPUC's General Permit 131-D, and approval under section 851 of the Public Utilities Code for enlargement of an electric easement on SoCalGas property.

State and local ministerial permits from the California Department of Transportation (Caltrans), the city of Santa Clarita, Los Angeles County, and the city of Los Angeles will be required for construction related activities (i.e., grading/excavation permit, storm water management plan, spill prevention plan, traffic control, hazardous materials business plan, building permit, etc.). A permit from the Federal Aviation Administration (FAA) may be required if construction activity during pole installation approaches heights of 200 feet or if wires are 200 feet or greater above ground level. If State or Federal species listed in Table 4.4-1 of Section 4.4 Biological Resources are adversely affected during construction, an incidental take permit will be required from the United States Department of Fish & Wildlife Service (F&WS) or the California Department of Fish and Game (CDFG).

Interagency Coordination

The PEA for the Proposed Project was prepared in collaboration with the following agencies and organizations: Southern California Gas Company; Southern California Edison Company; the California Public Utilities Commission; city and county of Los Angeles; and AECOM Environment. The Proponent held a meeting with the CPUC (April 30, 2009), for PEA guidance and project scope assessment.

Description of Public Outreach efforts

SoCalGas established a public outreach team for the Proposed Project with our understanding that for every project the public outreach efforts focus on ensuring that the community has an opportunity to be heard and is fully informed of the impacts and benefits through each stage of a project. To this end, SoCalGas has drafted a formal public outreach plan as part of the CPCN application filing. The planned public outreach efforts for the Proposed Project consist of: (1) briefing of stakeholders, including local, state and federal elected representatives, community organizations, and high consequence area entities, (2) dissemination of information to the public by way of mail, (3) creation of a project website, (4) creation of project materials for the local media, (5) community open house, and (6) door-to-door outreach. As part of the pre-filing phase of the outreach plan, the public outreach teams have been reaching out to residents and community leaders in the Santa Clarita and San Fernando Valleys for the past several months. The responses have been positive. SoCalGas worked with SCE to ensure that public outreach efforts for the Proposed Project were coordinated between both SoCalGas and SCE. Please see the Public Outreach section of the CPCN for additional details on past, pre-filing, filing, and post-filing public outreach activities.

Organization of the Document

This PEA is organized to closely follow the CPUC PEA Checklist (as updated in November 2008). The PEA Executive Summary (Chapter 1) discusses the primary project components, impacts and mitigation measures, conclusions, and proposed public outreach efforts. The Project Purpose and Need (Chapter 2) includes a background description and Proposed Project requirements for enhanced electrical services. The Project Description (Chapter 3) provides a detailed discussion of the project components, construction activities and schedule, and project design features designed to minimize impacts during construction and operation. Environmental Impact Assessment (Chapter 4) addresses 18 environmental resource areas and the potential impacts from the Proposed Project. A Detailed Discussion of Significant Impacts (Chapter 5) identifies and describes all projected impact areas of concern discussed in Chapter 4. Project Alternatives (Chapter 6) were identified and evaluated for feasibility and environmental impacts of alternative design and electrical demand strategy.

2.0 Purpose and Need

2.1 Project Overview

The Southern California Gas Company (the "Proponent" or "SoCalGas") provides reliable and efficient natural gas to approximately six million customers in Southern California. SoCalGas operates four underground storage facilities to help meet peak hourly, daily and seasonal demands for all its customers. The Aliso Canyon Gas Storage Field (the "Storage Field") is SoCalGas's largest underground natural gas storage field and one of the largest in the United States. The Storage Field plays a critical role in SoCalGas's gas storage and distribution system, which generally withdraws gas from storage during the winter months and injects gas into storage during the spring and summer months. The field has 84 billion cubic feet per day (Bcfd) of working storage inventory, 1.875 Bcfd of withdrawal capacity, and current end-of-cycle injection capacity of 300 million cubic feet per day (MMcfd). Approximately 45 percent of SoCalGas's total firm injection capacity is provided by Aliso Canyon. The majority of the injection capacity at Aliso Canyon is provided by three obsolete gas turbine driven compressors (TDCs) providing 15,000 International Organization for Standardization (ISO) HP each. These units were installed in the 1970's and have poor efficiency due to their use of older technology.

The Proponent proposes to upgrade the existing injection system by constructing and operating a new, electrically-driven natural gas compressor station. Electrical systems that serve the Storage Field will have to be upgraded in order to accommodate the three new 22,000 horsepower (HP) motors that will drive the compressors. SoCalGas will work with Southern California Edison Company (SCE) to determine the new and modified SCE electrical infrastructure that will be required to provide electrical service to the proposed Central Compressor Station and other related facilities, which are described and analyzed in this Proponent's Environmental Assessment (PEA).

The proposed Aliso Canyon Turbine Replacement Project (the "Proposed Project") is required in order to meet the terms of a Settlement Agreement (SA) between SoCalGas and parties to Phase 1 of the 2009 Biennial Cost Allocation Proceeding (BCAP) in D.08-12-020. The SA requires that SoCalGas replace the TDCs and expand the overall injection capacity at the field by approximately 145 MMcfd.

The California Public Utilities Commission (CPUC) and the California Environmental Quality Act (CEQA) have established guidelines for evaluating proposed project objectives and purpose. The primary objectives and purpose are addressed in this Chapter.

2.2 Project Objectives

The primary purpose and objective of the Proposed Project is summarized by term number eight of the SA:

> *"SoCalGas shall make commercially reasonable efforts to replace the existing three obsolete LM-1500 turbines used to compress up to 300 MMcfd of natural gas for injection into storage at its Aliso Canyon*

storage facility. Production by the manufacturer of these obsolete turbines was halted in the late 1970s and replacement parts are extremely limited. SoCalGas shall, during the replacement of the existing turbines, expand overall injection capacity at Aliso Canyon to the extent feasible by approximately 145 MMcfd. The replacement of turbines and expansion of injection capacity at Aliso Canyon shall be undertaken as soon as possible…The parties hereto agree to support expeditious approval of any CPCN application filed by SoCalGas with the Commission seeking authority to construct the storage injection facilities addressed in this paragraph."

Southern California needs a reliable and efficient natural gas supply in order to support power generation and to serve the heating, cooling and other energy needs of industrial, commercial and residential users. The reliability and efficiency of natural gas supply is directly related to the ability to purchase gas supplies during periods of low cost/low demand and to store it for distribution during high demand/high cost periods. This dynamic allows gas suppliers and customers to avoid having to make spot market purchases at typically higher prices and to ensure gas is available at times of peak demand. In its 2007 Integrated Energy Policy Report ("2007 IEPR"), the California Energy Commission stated that the natural gas infrastructure system is critical to California's ability to provide a stable and reliable supply of gas since only 15 percent of California's natural gas supplies are produced in state. The 2007 IEPR further stated that "California's natural gas storage has been instrumental to help guard against interruptions or severe weather changes, ensuring adequate supplies and making some contributions to more stable prices."

The overall need for natural gas storage is best met through an efficient storage system. Avoiding potential interruptions in the ability to inject purchased gas (e.g., due to breakdowns of equipment such as the obsolete TDC units), and increasing the ability to rapidly inject purchased gas (e.g., through increasing the injection capacity), represent efficiencies that can produce potential benefits to the overall gas storage system.

Based on the above, the following are the Proposed Project's objectives:

1. Reduce the potential for interruptions in the ability to store gas in the Storage Field, by replacing the obsolete TDC compressor station.

2. Meet the terms of the SA between SoCalGas and parties to Phase I of the 2009 BCAP (D.08-12-020). The SA requires that SoCalGas replace the TDCs and expand the overall injection capacity at the field by approximately 145 million cubic feet per day (MMcfd) in a timely manner.

3. Convert the compression from the Storage Field from natural gas to electric.

4. Design and construct a new electric compressor station and all necessary related infrastructure to increase the injection capacity at the Storage Field by approximately 145 MMcfd.

5. Provide improved vehicle access and security to the Storage Field by constructing a new guard house; relocate and replace existing office trailers in close proximity to the current TDC station

and Storage Field facilities; preserve other on-site facilities and minimize changes to Storage Field facility where feasible and practical.

6. Ensure successful conversion to electric compression prior to decommissioning the existing TDCs to minimize the potential for gas supply service interruptions after construction of the Proposed Project.

7. Utilize recent engineering and technological advances.

These Proposed Project objectives all support the overall need for a reliable, efficient and cost-effective gas supply. The Proposed Project addresses these objectives by: 1) designing, constructing and operating a new, higher-capacity gas storage compressor station, and 2) powering the new compressor station with electricity as opposed to natural gas and incorporating technologies such as VFD into its design.

3.0 Project Description

This Chapter presents a detailed discussion of the proposed Aliso Canyon Turbine Replacement Project (the "Proposed Project") and has been designed to closely follow the Proponent's Environmental Assessment (PEA) Checklists as developed by the California Public Utilities Commission (CPUC). The CPUC has developed two checklists – one for underground gas storage facility projects and one for transmission and substation projects (both revised November 24, 2008). Because the Proposed Project features both gas storage and electrical facility components, Chapter 3 of this PEA was developed to meet CPUC guidelines for both gas storage and electrical projects.

The Proposed Project is the replacement of three obsolete gas turbine driven compressors (TDC) with three new electric-driven variable frequency drive (VFD) compressor trains. Related improvements include construction of a new compressor station (the "proposed Central Compressor Station"), relocation of existing office facilities and guard house, installation of a new 12 kilovolt (kV) plant power line (PPL) serving the proposed Central Compressor Station and additional work to be performed by Southern California Edison (SCE), including modifications to two existing SCE 66 kV sub-transmission lines, construction of a new dedicated electrical substation (the "proposed SCE Natural Substation"), and proposed modifications to three existing SCE substations to accommodate the new 66 kV service to the proposed Central Compressor Station.

3.1 PROJECT LOCATION

The Proposed Project location is represented on Figure 3.1-1. The proposed on-site improvements including the proposed Central Compressor Station, proposed office trailer relocation, proposed PPL, proposed SCE Natural Substation, and modification of an existing SCE 66 kV sub-transmission line which currently traverses the Storage Field. These improvements will all be located within the Storage Field property boundary in unincorporated Los Angeles County, with the possible exception of road improvements at the guard house relocation within the city of Los Angeles. Additional on-site improvements include the proposed construction of a new guard house that provides street access to the Storage Field from Sesnon Boulevard. The new guard house will be located within the Storage Field property boundary in Los Angeles County. The Storage Field is located at 12801 Tampa Avenue, in Northridge, California, north of Highway (HW) 118, and encompasses approximately 3,600 acres. The Aliso Canyon Plant Station (Plant Station) is located in the southwestern portion of the Storage Field, approximately 0.8-mile north of Sesnon Boulevard. The Plant Station site includes the existing compressor station and office trailers; it also includes previously disturbed sites proposed for the location of the proposed Central Compressor Station and proposed office trailer relocation. Access roads to the Plant Station include Sesnon Boulevard, Porter Fee Road to the north and Limekiln Canyon Road to the south.

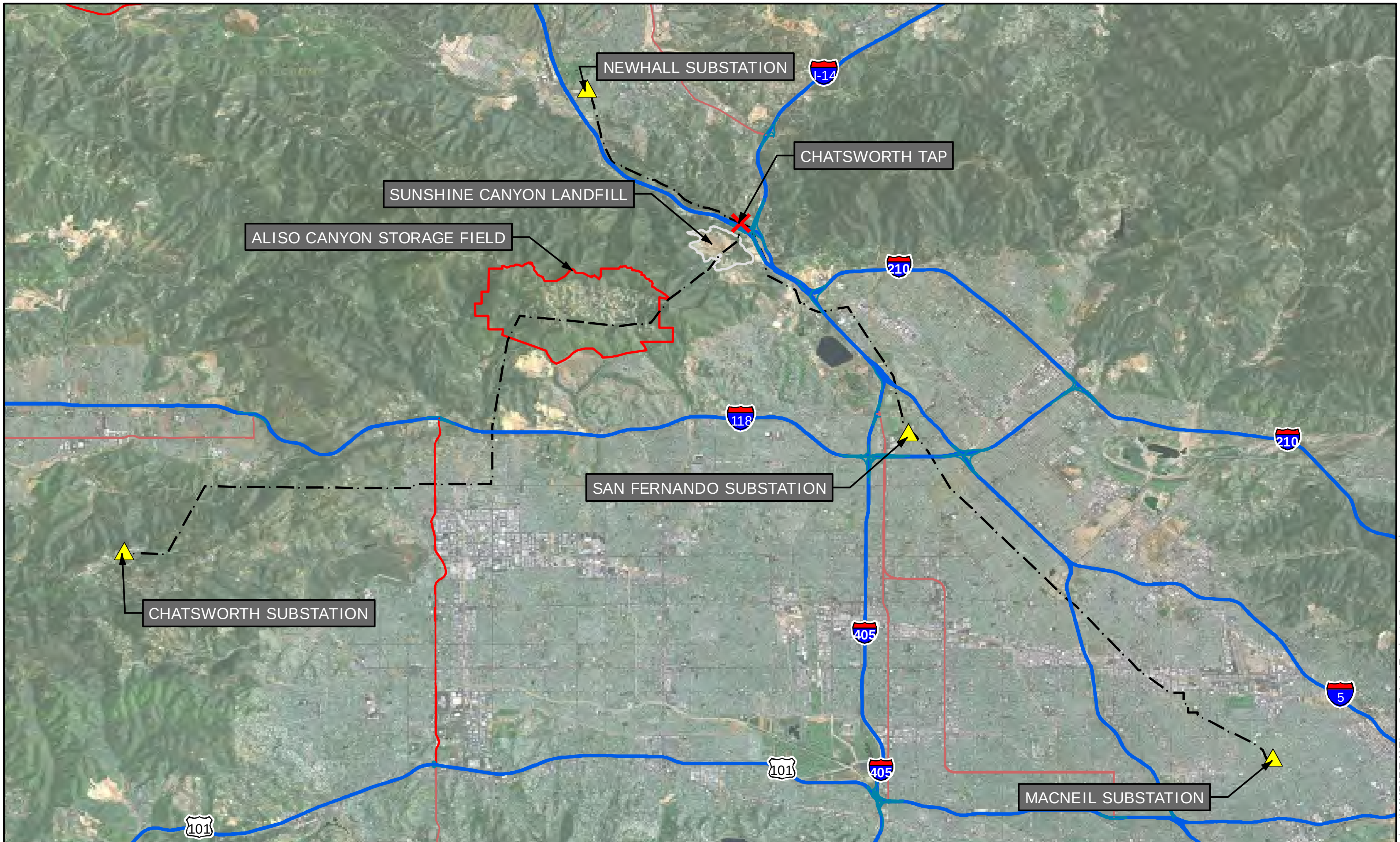
The proposed SCE 66 kV sub-transmission line modifications include improvements located both on-site and off-site; the proposed modifications will be located within the city of Santa Clarita, unincorporated Los Angeles County and the city of Los Angeles. The two existing SCE 66 kV sub-transmission lines, known as the Chatsworth-MacNeil-Newhall-San Fernando line and the MacNeil-Newhall-San Fernando line, are proposed to be re-built, or modified, originating at the Newhall Substation, located at the intersection of

Wiley Canyon Road and Lyons Avenue, in the community of Newhall in the city of Santa Clarita. The route of the proposed SCE 66 kV sub-transmission line modification will follow the existing SCE 66 kV alignment toward Interstate 5 (I-5) south to the SCE Chatsworth tap, at tap point A, located approximately 4 miles south of the Newhall Substation (see Figure 3.1-1). At the SCE Chatsworth tap (point A), the route of the proposed SCE 66 kV sub-transmission line modification will traverse in a southwesterly direction to the proposed SCE Natural Substation location. Additional off-site improvements include proposed modifications at three existing SCE substations: the Newhall, Chatsworth, and San Fernando Substations. The Newhall Substation, described above, is located within the city of Santa Clarita within Los Angeles County. The Chatsworth Substation, located near the Chatsworth Reservoir, near Valley Circle Road and Plummer Street (within Ventura County) and San Fernando Substation, located near the intersection of San Fernando Mission Boulevard and Sepulveda Boulevard, (within the community of Mission Hills) is located within the city of Los Angeles.

Existing land uses within the Proposed Project on-site components consist of natural gas storage. Existing land uses in the vicinity of the off-site electrical improvements include solid waste disposal, open space, residential, agricultural, and recreational. The overall region is characterized by canyons, hills, and mountain ranges, which provide an open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita 2008). The alignment of the proposed SCE 66 kV sub-transmission modification is located near open spaces such as the Santa Susana Mountains and associated park lands on the western side of I-5.

As shown on Figure 3.1-1, the SCE Chatsworth-MacNeil-Newhall-San Fernando 66 kV sub-transmission line segment of approximately 4,200 feet runs over the center of the Sunshine Canyon Landfill east of the Storage Field. The Sunshine Canyon Landfill is planning an expansion to accommodate ongoing landfill operations in the area. Environmental review for this expansion is being competed entirely separate of the Proposed Project, with Los Angeles County as the Lead Agency. However, the expansion will require relocation of the existing 66 kV alignment to run along the northern perimeter of the disturbed area of the landfill property boundary. SCE may be submitting a separate Permit to Construct (PTC) application to the CPUC by 2010 associated with the relocation of the line around the landfill during in which activities associated with the relocation will be analyzed; however, as of the time of this CPCN filing, SCE has been unable to confirm BFI's intended timeframe for this relocation As such, while the SoCalGas PEA is presenting the route alignment as it is proposed to be relocated under SCE's separate PTC, the SoCalGas PEA is not analyzing the relocation nor is the relocation part of the Proposed Project. If the Sunshine Canyon Landfill relocation project does not occur or if it occurs after the construction of the Proposed Project, the Proposed Project would follow the existing alignment across the landfill.

Figure 3.1-2 depicts the locations of several Proposed Project components, including the proposed Central Compressor Station, the proposed SCE Natural Substation location, the portions of the two SCE 66 kV sub-transmission lines proposed for modification (represented by the pink line on the existing alignment), and additional work to be conducted at SCE's San Fernando Substation. Figure 3.1-3 provides a detailed view of the on-site improvement locations, including the proposed Central Compressor Station, office trailer relocation, PPL alignment, guard house, and new SCE Natural Substation. The location of the proposed SCE Natural Substation is approximately 1800 feet west of the proposed Central Compressor Station site on elevated terrain between two towers of the existing SCE 66 kV alignment; the PPL is represented by the blue line in Figure 3.1-3. Figure 3.1-4 shows the existing turbine compressor and office locations, and the proposed office and Central Compressor Station.



Map Location

Legend

- Existing SCE 66 kV Alignment
- Aliso Canyon Storage Field
- Sunshine Canyon Landfill
- Existing SCE Substation
- Existing SCE Chatsworth Tap A

N W E S

1 inch = 3 miles   0   3   6 Miles

Aliso Canyon PEA

Figure 3.1-1
Project Overview
Existing Gas Storage Field and
SCE 66kV Sub-transmission Facilities

Project: 06205-134
Date: September 2009

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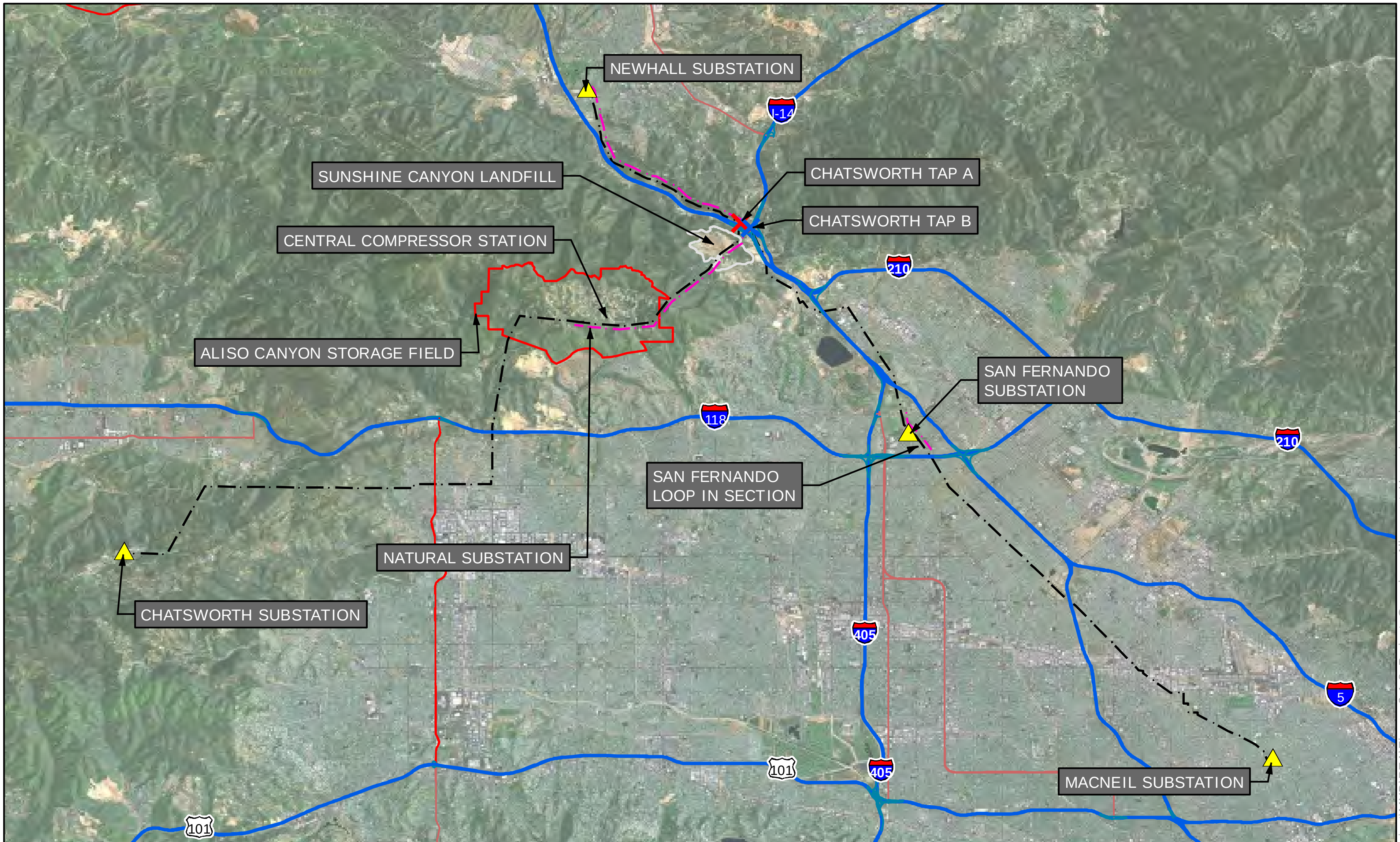

Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Aliso Canyon Storage Field
- Sunshine Canyon Landfill
- Existing Substation
- Existing SCE Chatsworth Tap A
- Proposed SCE Chatsworth Tap B

1 inch = 3 miles

0 3 6 Miles

Aliso Canyon PEA

Figure 3.1-2
Project Overview
Proposed Central Compressor Station, Trailers, SCE Substation and Sub-transmission Upgrade

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL

N W E S

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

Aliso Canyon PEA

Figure 3.1-3
Project Overview
Proposed Project Components within the Storage Field

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Map Location

Legend

Proposed SCE 66 kV Modification

Existing SCE 66 kV Alignment

PPL

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon PEA

Figure 3.1-4
Proposed Office Trailer Relocation

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

3.2 EXISTING GAS AND ELECTRIC SYSTEM

3.2.1 Aliso Canyon Gas Storage Field

The existing gas system within the area of the Proposed Project is the Storage Field, represented in Figure 3.1-1. The Storage Field is owned and operated by the Proponent. The Storage Field is one of the largest natural gas reservoirs in the United States. The total inventory including cushion gas is 165.5 billion cubic feet (BCF), with a working inventory is 84.0 BCF. The maximum withdrawal rate is 1.875 billion cubic feet per day (Bcfd) and the existing maximum injection rate at the end of cycle is 300 MMcfd, respectively. Oil and water recovery are by-products of gas storage operations. In 2006, the oil recovery and water production rates were recorded at 201 barrels per day and 299 barrels per day, respectively.

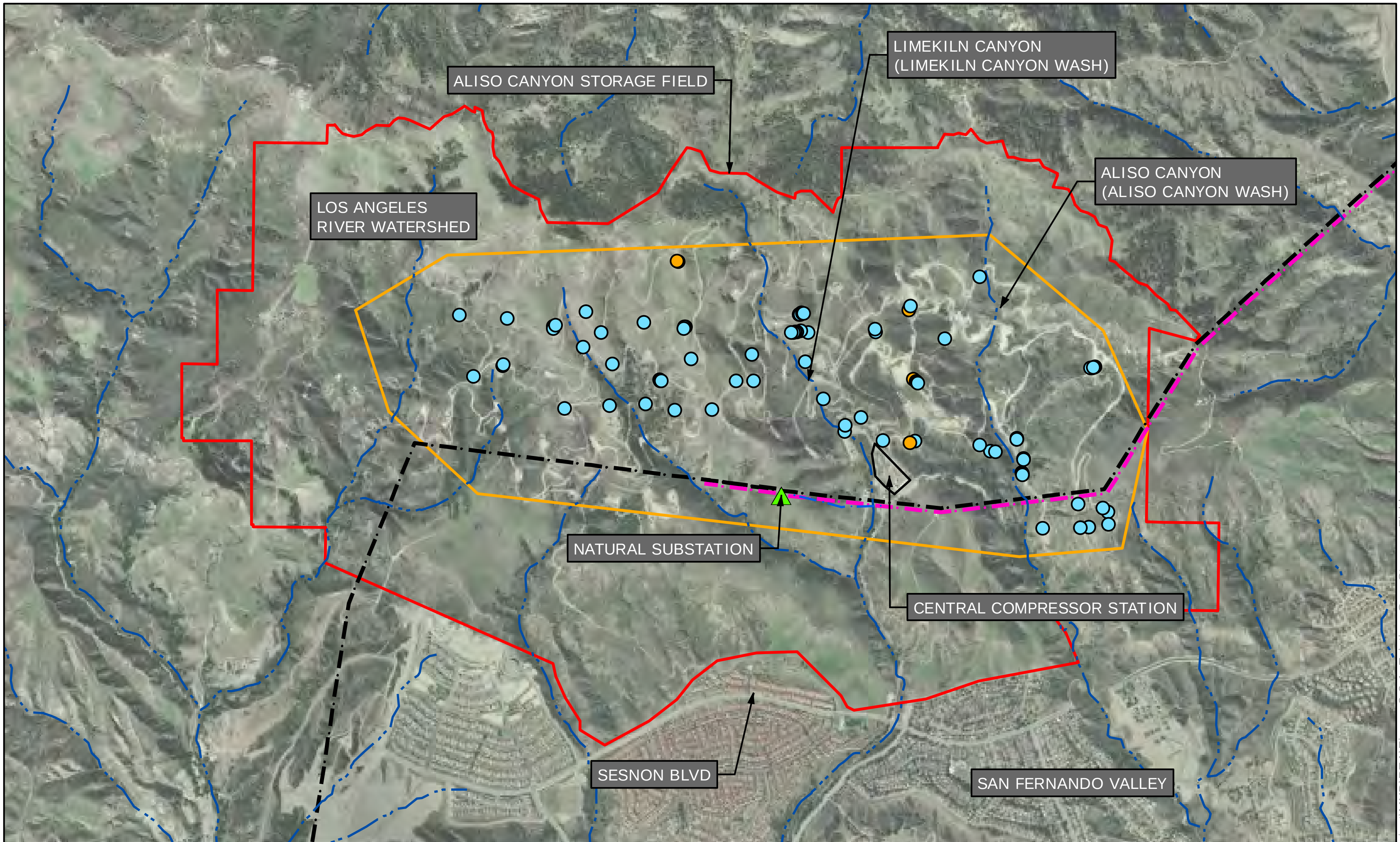
Figure 3.2-1 shows the existing Storage Field including the property boundary, the location of the existing compressor station, and the existing 66 kV sub-transmission line that SCE operates within an existing right-of-way (ROW) through the southern portion of the plant property. Also shown on Figure 3.2-1 is the location of the proposed SCE Natural Substation.

History of Oil/Gas Field

The Storage Field was discovered in 1938 with the drilling of the Tidewater Association Oil Company (currently the Getty Oil Company) Porter number 1 oil well; it was subsequently turned into a storage field in 1974. At the end of the first injection cycle (in 1974), the gas inventory was approximately 60.7 BCF at a P/Z (reservoir pressure/modified gas compressibility) value of 3,900 pounds per square inch (psia). Currently, the cumulative recovery at the Storage Field, over the 35 years of natural gas storage activities, exceeds approximately 60 million barrels of oil and 180 million cubic feet of gas.

Subsurface Reservoir Description

The overlying stratigraphy of the Storage Field is Miocene and Eocene sediment with two oil and gas producing zones, consisting of (in order of increasing depth) the Sesnon and the Frew. The existing types of rock include sandstone, siltstone and shale. The production zones of the Storage Field come from the formation structure known as the faulted anticline. The Sesnon formation consists of inter-bedded sandstone, siltstone, and shale with basal member containing lenses of conglomerate. The Frew formation is a thick conglomerate and sandstone wedge underlying the Sesnon zone, which constitutes the basal reservoir of the gas storage. Cap rock is approximately 300 feet thick, consisting primarily of shale with inter-bedded siltstone. The porosity of the formation is 22 percent and the permeability of the formation is 85 millidarcy (mD). The thickness of the upper strata, or Sesnon zone, averages approximately 150 feet. The thickness of the lower Sesnon zone ranges between 50 feet and 300 feet. The thickness of the Frew zone ranges between 0-foot and 500 feet.



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL
- SCE Natural Substation Location
- Storage Field Property Boundary
- Storage Field
- Gas Storage-Injection/Withdrawal Well
- Gas-Converted to Gas Storage Well
- NHD Watercourse

1 inch = 2,500 feet

0 2,500 5,000 Feet

N E S W

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Figure 3.2-1
Existing Gas Storage Field

Source: CA DOGGR 2009

Southern California Gas Company
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Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_3-2-1_Existing_Gas_Storage_Field.mxd

Reservoir Injection / Withdrawal Wells and Connecting Flowlines

The Storage Field has 116 injection/withdrawal wells and two observation wells. The depth of the storage zone ranges from 7,100 feet to 9,400 feet. The average depth of the wells is approximately 8,500 feet. The well sizes vary; however, most of the wells are completed with a 7-inch or 9-5/8-inch production casing. Oil and gas production comes from Miocene and Eocene sediments with two producing zones, the Sesnon and the Frew, as described above. The drive mechanism of the reservoir is a gas-cap drive. The maximum withdrawal rate of a well can be up to 80 MMcfd at high field inventory and pressure. The well sites are represented on Figure 3.2-1.

Well-Head Sites

The existing wells will not be impacted as a result of this project. There will not be any new injection/withdrawal wells constructed. There are no abandoned wells on the project site and there are no well abandonments planned for the Proposed Project. There will not be any additional monitoring or test wells constructed as part of the Proposed Project. The existing injection/withdrawal system is depicted in the block flow diagram shown on Figure 3.2-2

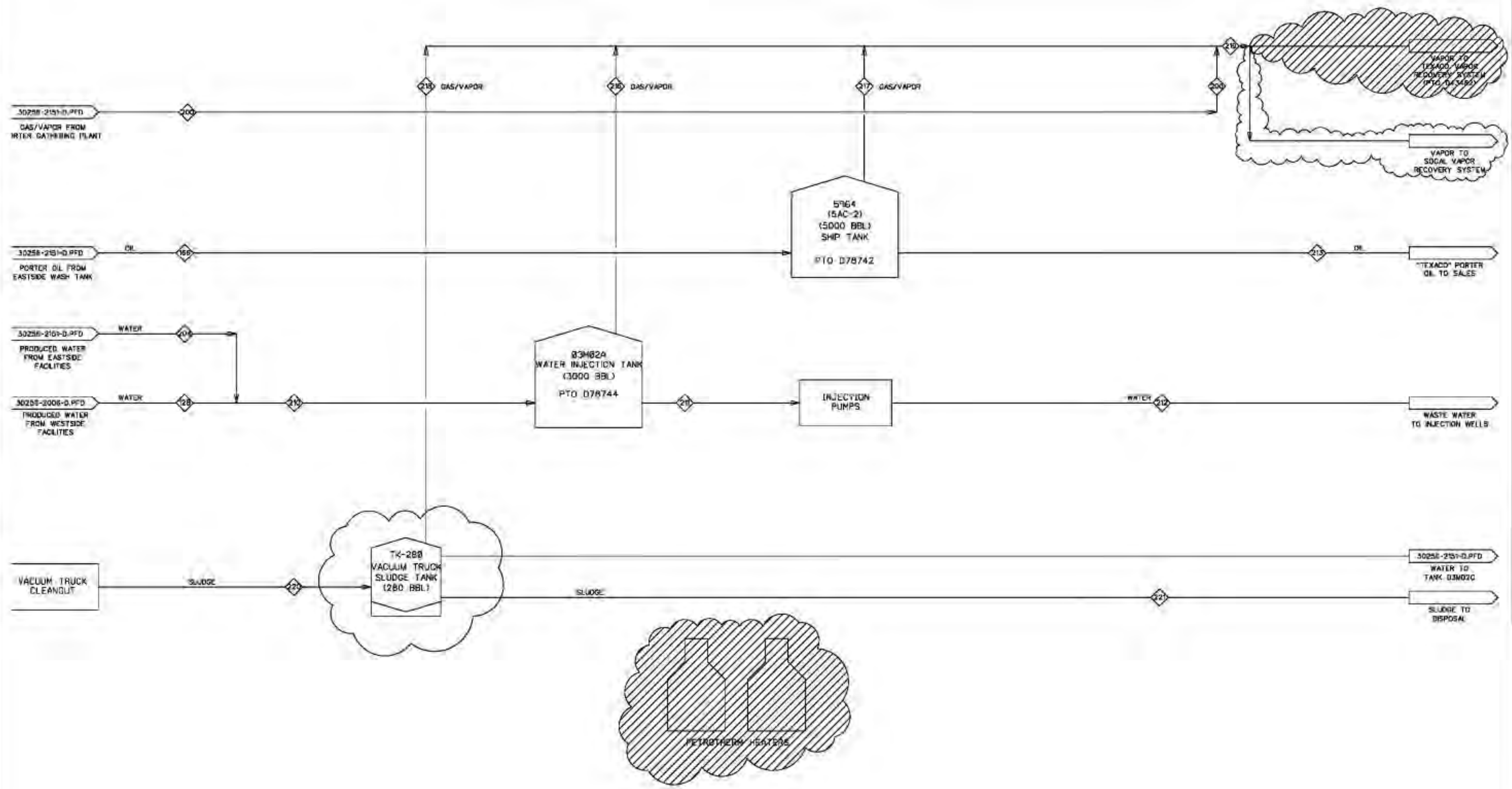

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Figure 3.2-2
Storage Field Injection /Withdrawl Block Flow Diagram

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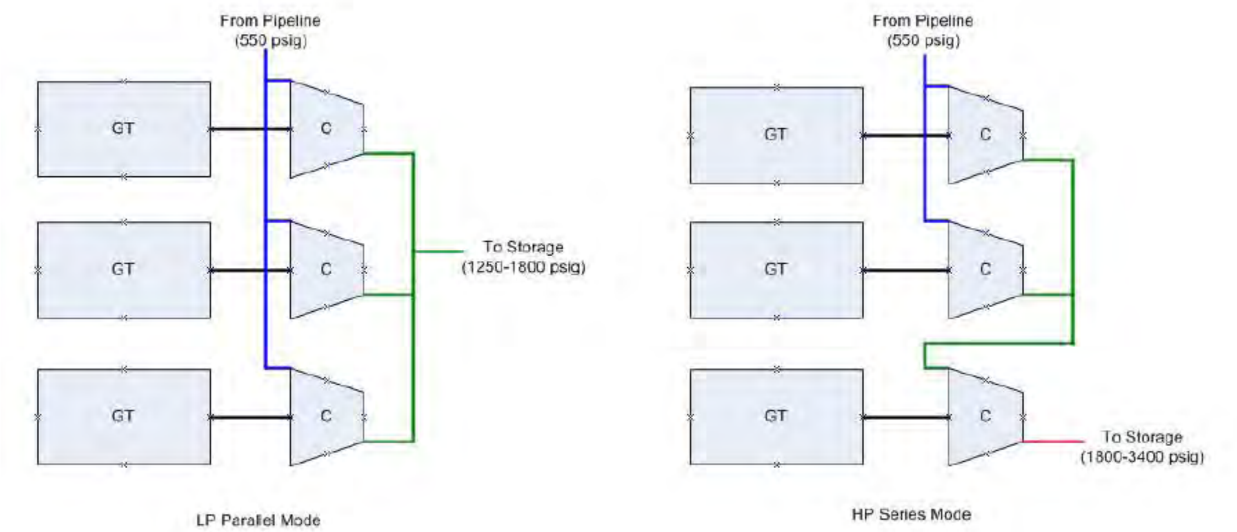
Existing Turbine-Driven Compressors

TDCs are currently used to inject pipeline gas to storage from a pipeline pressure of approximately 550 pounds per square inch (gauge) (psig) into a formation that can range in pressure from 1250 psig to 3400 psig. The compressors can be operated either with three units in parallel or with two units in parallel and one unit in series when higher-pressure operation is required. Each compressor has an inter-cooler between the stages of the casing in addition to an after-cooler. The configuration of the compression system compressors is represented on Figure 3.2-3 below.

Figure 3.2-3 Base Configuration in Parallel and Series Mode of Operation



The compressors were manufactured by Clark and are driven by GE LM-1500 gas turbines. They were installed in 1971. Current maximum discharge pressure of the TDCs is approximately 3,000 psig.

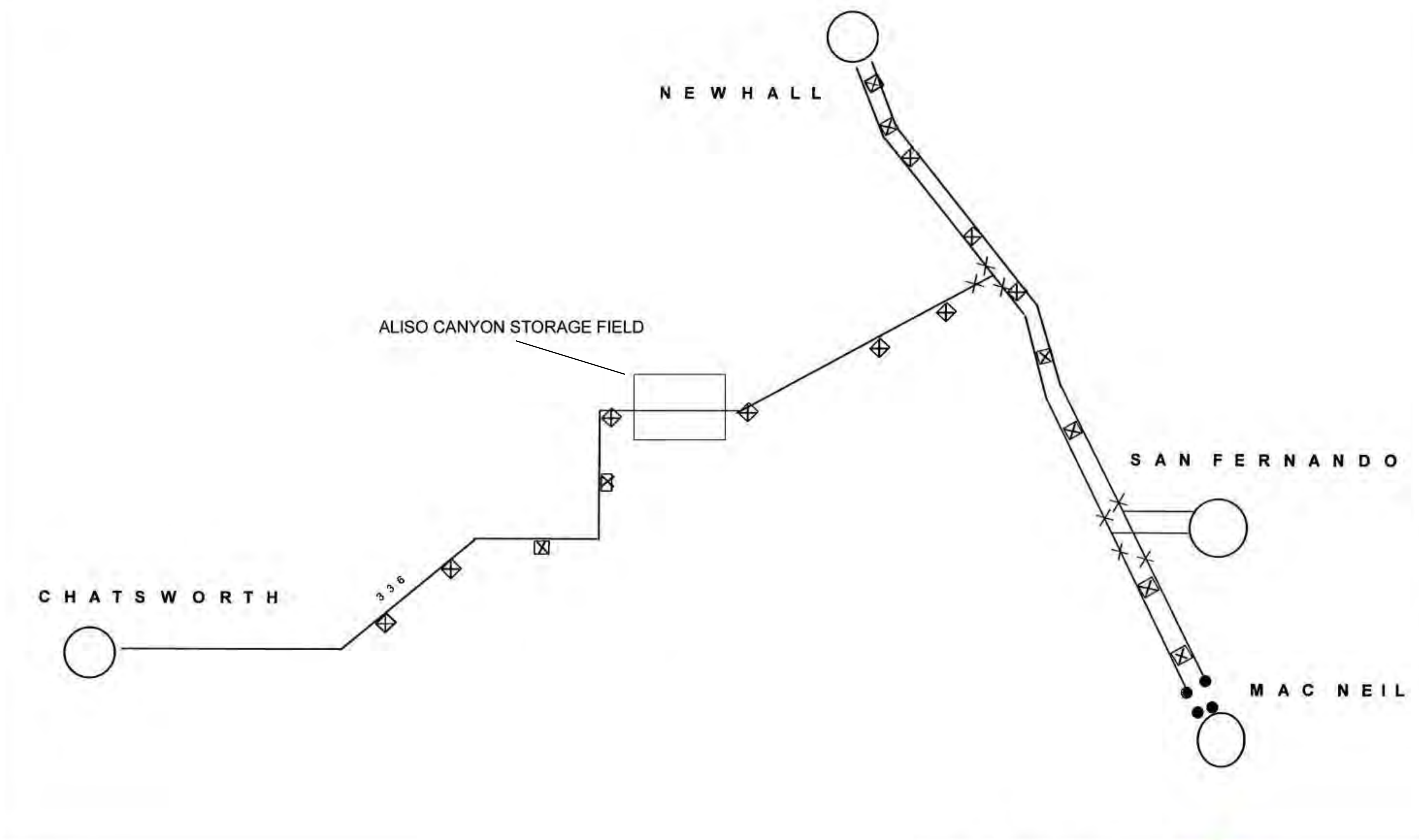
Produced Water and Other Associated Products

Produced water and crude oil are removed from the withdrawal gas stream in various field separators and slug catchers. Water, oil, and hydrocarbon condensate are also produced in the dehydration process and the compression cycle. Water, oil, and hydrocarbon condensate flow to either the Sesnon Gathering Plant or the Porter Gathering Plant. In each of the gathering plants dissolved gasses are separated through a two-stage pressure cut, and the remaining oil/water stream flows to a free water knock out (FWKO). From the FWKO the water flows to the water injection plant, and the oil flows to the heater treater. Oil from the heater treater goes to storage for eventual sale, and water from the heater treater also goes to the water injection plant.

At the water injection plant, the produced water flows through a wash tank and a surge tank. Residual oil is skimmed from the wash tank and surge tank and is sent back to the gathering plant for reprocessing. Finally, the water flows from the surge tank to the injection pumps where it is pumped into various flood and/or disposal wells. There are (6) flood wells and (2) disposal wells.

3.2.2 Electric Distribution and Transmission System

The Proponent's existing 16 kV primary metered electric service to the Storage Field is provided by a 16 kV distribution line called the SCE Gavin 16 kV circuit. Both the SCE Gavin circuit and two SCE 66 kV sub-transmission lines originate at SCE's Newhall Substation but follow separate alignments from their origination (see Figure 3.1-1). SCE has indicated that the SCE Gavin circuit, which currently provides electrical service to the field gathering plants, would not be able to meet the future energy requirements (50 megawatts) of the proposed Central Compressor Station with the addition of three new variable frequency drive (VFD) motors; and, that the SCE 66 kV sub-transmission lines could provide an adequate electrical alternative for the gas plant's energy needs. The Proposed Project would not impact the existing SCE 16 kV distribution circuit. The existing 16 kV primary metered service will be removed in accordance with SCE CPUC approved Tariff Rule 2 and 16. The existing SCE 66 kV sub-transmission facilities proposed for modification are represented on Figure 3.2-4.



◯	**Substation**
×	**Pole Switch**
⊠	**Line on Tower**

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Figure 3.2-4
Existing 66 kV Sub-transmission Alignment

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3.3 PROJECT OBJECTIVES

SoCalGas provides natural gas to approximately six million customers in Southern California. SoCalGas operates four underground storage facilities to help meet peak hourly, daily and seasonal demands for all its customers. The Aliso Canyon Storage Field is SoCalGas's largest underground natural gas storage field and one of the largest in the United States. The Storage Field plays a critical role in SoCalGas's gas storage and distribution system, which generally withdraws gas from storage during the winter months and injects gas into storage during the spring and summer months. The field has 84 Bcfd of working storage inventory, 1.875 Bcfd of withdrawal capacity, and current end-of-cycle injection capacity of 300 MMcfd. Approximately 45 percent of SoCalGas's total firm injection capacity is provided by the Storage Field. The majority of the injection capacity at the Storage Field is provided by three obsolete gas TDC's providing 15,000 International Organization for Standardization (ISO) HP each. These units were installed in the 1970's and have poor efficiency due to their use of older technology.

The Proposed Project objectives are to reduce the potential for interruptions in the ability to store gas in the Storage Field by replacing the existing TDC station, designing and constructing a new electric compressor station which increases the injection capacity at the Storage Field by approximately 145 MMcfd, and utilizing recent engineering and technological advances. As storage services are a critical part of SoCalGas's hourly, daily, and seasonal supply/demand balance equation, it is imperative that the Storage Field remain highly reliable and efficient.

Another objective of the Proposed Project is to reduce air emissions associated with the existing compressors. The Proposed Project will replace all existing TDC compression equipment including the gas coolers. To improve efficiency, the Proponent plans to construct a new compressor station that will house three new VFD motors (22,000 HP each). The VFD motors will provide increased natural gas injection capabilities and upgrade natural gas service reliability. The Proposed Project objectives also include implementing the terms of a settlement agreement (SA) between SoCalGas and parties in Phase I of the 2009 Biennial Cost Allocation Proceeding in A.08-02-001. The SA was approved by the CPUC in D.08-12-020, which requires SoCalGas to replace the existing TDC station and expand the overall injection capacity at the Storage Field by approximately 145 (MMcfd). The Proposed Project objectives are detailed in Chapter 2.

3.4 PROJECT OVERVIEW

Proposed Project Component Owner/Operator

The Proposed Project components include a proposed Central Compressor Station with three new VFD motors, relocation of the existing office trailers and guard house, a proposed PPL line interconnected to the proposed Central Compressor Station, a proposed SCE Natural Substation, and related off-site modifications to two existing SCE 66 kV sub-transmission lines and three existing SCE substations. SoCalGas is the Proponent of the Proposed Project; therefore, they will work extensively with SCE to license and implement the modifications to the SCE facilities needed to provide electrical services to the Proposed Project. Table 3.4-1 below represents the various owner/operator project components.

Table 3.4-1 Proposed Project Components Owner/Operator

Project Component	Owner/Operator
Central Compressor Station	Southern California Gas Company
Office Trailer Facilities and Guard House	Southern California Gas Company
12 kV Plant Power Line (PLL)	Southern California Gas Company
On-site SCE Natural Substation	Southern California Edison Company
On-site and Off-site Modifications to 66 kV Sub-transmission Lines	Southern California Edison Company
Other Off-site SCE Substation Modifications	Southern California Edison Company

Project Components Overview

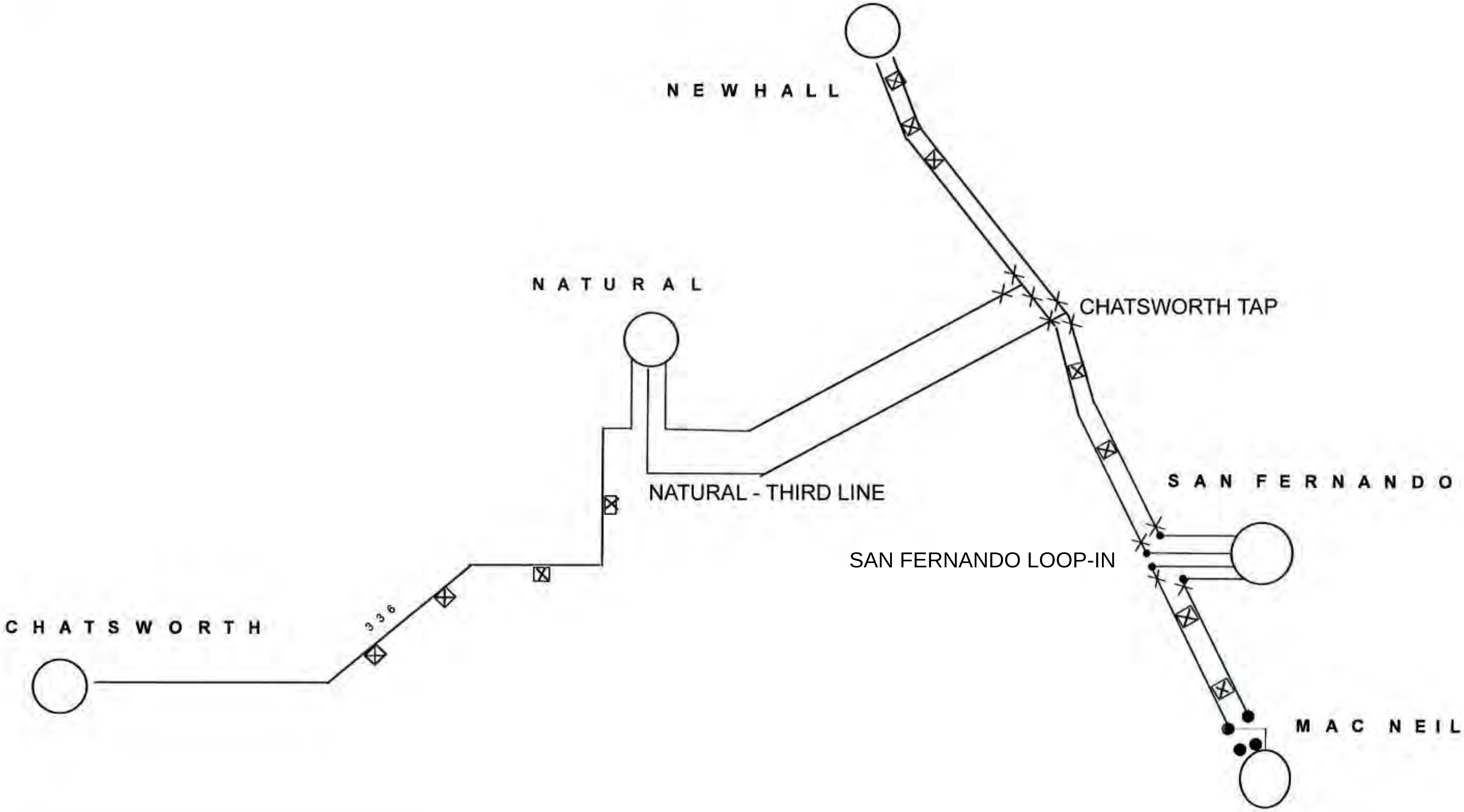
Construction of the proposed Central Compressor Station, proposed PPL, and relocation of office trailer facilities and guard house will be conducted by the Proponent. The installation of the new VFD compressor trains will not affect the existing system including the storage reservoir, wells, pressure, field lines, and other Storage Field parameters; they will be constructed to operate using the existing system without modification. The proposed Central Compressor Station will be connected to the suction, discharge and blowdown headers from the existing TDC station. Additional piping is proposed to connect the suction and discharge header at the proposed Central Compressor Station, and to connect the new compression facility to the existing emergency shutdown system; however, there are no new pipelines or wells planned as part of the Proposed Project. The TDCs will be retired in accordance with public utility retirement processes typically implemented by the Proponent. This includes maintaining the existing TDC station for at least one field cycle of tested reliable service using the VFDs in order to verify reliable and efficient operations using the new equipment.

The proposed PPL will be designed to San Diego Gas and Electric (SDG&E) Standards and constructed by the Proponent with four circuits to provide three (3) phase four (4) wire electrical services to the proposed Central Compressor Station and other existing site load. The proposed PPL will be interconnected from the proposed SCE Natural Substation to the proposed Central Compressor Station. The alignment of the PPL will be determined from several available options upon final engineering and design considerations for the proposed SCE Natural Substation. The trailer facilities relocation will remove the existing office trailers from service and place new office facilities within a designated location. The guard house will be relocated approximately 500 feet north of the existing guard house along the existing access road. The existing guard house will remain in place for security and signage purposes. The guard house relocation will provide additional staging area for incoming trucks helping to reduce associated city street congestion.

The proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission line modifications, and proposed modifications at three additional SCE substations will be constructed by SCE. The proposed SCE Natural Substation will be a 112 megavolt ampere (MVA) 66/12 kV customer dedicated substation, constructed according to SCE design specifications. The proposed SCE Natural Substation will include a communication system, mechanical engineering and electrical room (MEER), substation lighting, new poles, loop-in circuits, cables, conductors, capacitors, and transformers. SCE proposes to connect three lines to the proposed SCE Natural Substation; two lines will be created from the existing SCE Chatsworth-MacNeil-Newhall-San Fernando line (constructed by SCE). SCE will construct a loop-in section at the existing Chatsworth-MacNeil-Newhall-San Fernando 66 kV line through the proposed SCE Natural Substation, creating two new lines: the SCE Chatsworth-Natural 66 kV line and the SCE Natural-Newhall-San Fernando #1 66 kV line. In addition, SCE proposes to add a new section of line to the existing SCE MacNeil-Newhall-San Fernando line to create the new SCE Natural-Newhall-San Fernando #2 line. The existing 66 kV lines will be looped through SCE's San Fernando Substation, creating the MacNeil-San Fernando # 1 and the MacNeil-San Fernando #2 lines.

SCE plans to rebuild a portion of the towers supporting the SCE Chatsworth-MacNeil-Newhall-San Fernando 66 kV line and the SCE MacNeil-Newhall-San Fernando 66 kV existing source lines. Both lines originate at SCE's Newhall Substation rack and are supported on the same structures; SCE plans to rebuild the tower lines from the Newhall rack to the first structure south of the Chatsworth tap point A (Mile 7 – Tower 6). The existing towers and poles will be replaced with engineered tubular steel poles (TSPs) and the line will be re-conductored with 954 aluminum conductor steel reinforced (ACSR) conductors. SCE also plans to rebuild the Chatsworth tap line and add a second line, from the tap point B (Mile 7 – Tower 5) out to the first structure past the proposed SCE Natural Substation (furthest structure is Mile 12 – Tower 2), represented on Figure 3.4-1.

Off-site improvements proposed at three existing SCE substation include both construction and non-construction related activities. For the purposes of the Proposed Project, construction is defined as activities involving ground disturbance, material use or storage, and/or heavy duty equipment. Off-site improvements proposed for the San Fernando Substation include removing up to four existing LSTs and installing up to four TSPs. Up to two TSPs will be installed within the existing substation footprint, and up to two TSPs will be installed along the existing transmission alignment to the substation. In addition, two loop sections will be installed into the rack to provide a loop-in interconnection and two new positions at the San Fernando Substation. Proposed substation modifications not requiring construction includes installation of new relay equipment at the Newhall, San Fernando, and Chatsworth Substations. Relay system equipment includes current differential relaying systems, current transformer (CT) connections, and a dedicated digital communications system. The relay system and related equipment will be installed within the MEER and would not include any construction or ground disturbing activities.



Substation

Pole Switch

Line on Tower

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Figure 3.4-1
Proposed SCE
66 kV Sub-trnamission
Line and Substation
Modifications

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3.5 PROJECT COMPONENTS

This section provides additional description and detail of the components described in the previous section. A summary of project components as organized for discussion in this section is presented in Table 3.5-1.

Table 3.5-1 Summary of Project Components

3.5.1	Central Compressor Station
3.5.2	Office Trailer Facilities and Guard House
3.5.3	12 kV Plant Power Line
3.5.4	On-site SCE Natural Substation
3.5.5	On-site and Off-site SCE 66 kV Sub-transmission Line Modifications
3.5.6	Off-site SCE Substation Modifications

3.5.1 Central Compressor Station

Compressor Station Site and Surrounding Uses

The proposed Central Compressor Station will be constructed within the footprint of the existing Aliso Canyon Plant Station, which is located in the southwestern portion of the Storage Field. The Storage Field is located in Northern Los Angeles County, about 20 miles north of downtown Los Angeles and is situated within the topographic feature of Aliso Canyon. The Plant Station is situated in elevated terrain and is surrounded by hills on all sides. Residential land uses are located south of the Plant Station and Proposed Project site. Areas west, north and east of the compressor injection site are part of the Proponent's property and are mostly undeveloped, with other Proponent operations (including existing soil re-engineering sites, laydown areas, and equipment storage) located within the property. This site is within the canyon and is not observable from any neighboring area roads. The proposed Central Compressor Station will be constructed in a previously disturbed portion of the Plant Station.

The proposed Central Compressor Station will house the new VFD motors, with a total combined HP of approximately 66,000 HP. The VFD motors will be powered by electricity provided by the proposed SCE Natural Substation via the PPL. The site will be fenced and paved for access control, fire control, and maintenance purposes.

The VFD motors will provide power to the compressors, which inject pipeline (natural) gas into the ground for storage. The proposed Central Compressor Station will have a maximum injection capability of 450 MMcfd of natural gas per day at end-of-cycle. The purpose of the VFD motors is twofold: to provide enhanced natural gas service reliability; and to provide enhanced injection capabilities to cycle through the field more efficiently. The preliminary plot plan for the proposed Central Compressor Station is provided on Figure 3.5-1.

Pipelines and Interconnections with Existing Facilities

Suction for the new compressors will be taken from two existing 30-inch transmission lines (Lines 1180 and 1181) and the discharge of the compressors will connect to the existing 20-inch injection line from the existing TDCs. Liquids from the suction, interstage, and discharge separators will be sent to the existing liquid line which runs from the existing compressor station to the Porter Gathering Plant. The Emergency Shut Down vent piping will be connected to the existing vent header. All piping will be installed above grade on pipe supports or in a trench.

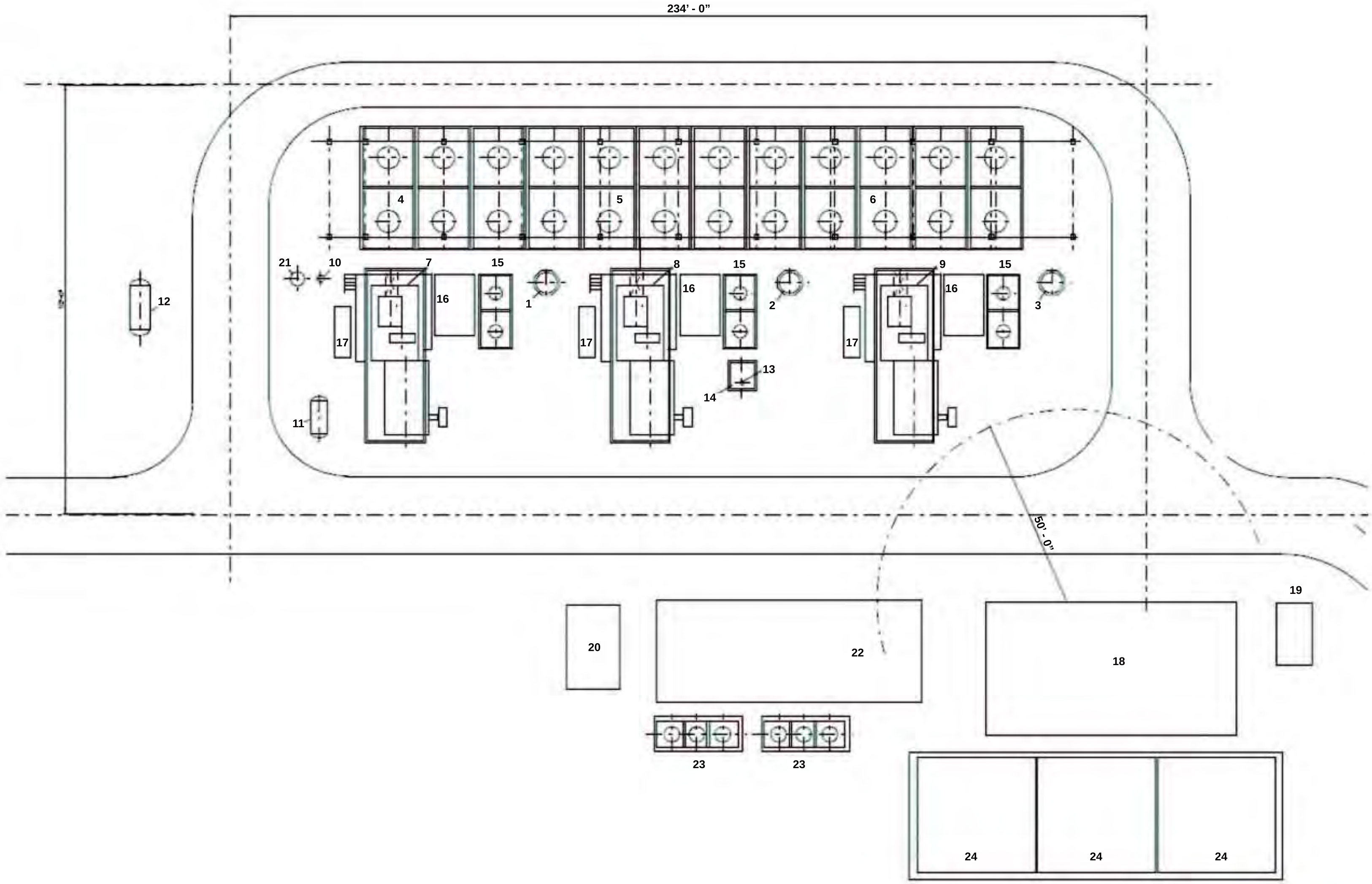
There will be no changes to the existing pipelines that transport gas to and from the Storage Field. However, additional piping will be required to connect the suction and discharge header at the proposed Central Compressor Station location, consisting of approximately 550 feet of 18-inch line for the discharge header and approximately 550 feet of 24-inch line for the suction header. Approximately 600 feet of 24-inch line would be installed to connect the proposed Central Compression Station facility to the existing emergency shutdown system. All of these would be above-grade lines.

Gas Metering and Control

The existing gas orifice meter measures injection and withdrawal to monitor the flow rate. Metering and control of the new injection compressors will be conducted using the existing metering system. The control system provided with the new compressors will be connected to the existing Supervisory Control and Data Acquisition (SCADA) system in the existing, on-site, operation office. Some key information will be transmitted to SoCalGas's existing central control room in East Los Angeles; however, remote control is not included as part of the Proposed Project at this time. Telemetry will be installed as required to allow for operation of the new compression equipment from the existing on-site control room.

Preliminary Design Details

The preliminary design details for the proposed Central Compressor Station include three VFD motor-drives. The motor drives run at about 22,000 HP each; the compressors are capable of providing over 450 MMcfd up to 3400 psig at end-of-cycle. Design specifications and architectural drawings will be developed during detailed project design. A general plot plan showing orientation of the proposed Central Compressor Station and ancillary equipment is shown on Figure 3.5-1.



Equipment Index

1. V-101A Compressor Suction Scrubber
2. V-101B Compressor Suction Scrubber
3. V-101C Compressor Suction Scrubber
4. A-101A Compressor Aftercooler
5. A-101B Compressor Aftercooler
6. A-101C Compressor Aftercooler
7. C-101A Compressor
8. C-101B Compressor
9. C-101C Compressor
10. V-301 Instrument Gas Scrubber
11. V-303 Process Liquids Drain Drum
12. V-100 Inlet Filter Drain Drum
13. P-302 Open Drain Sump Pump
14. X-302 Open Drain Sump Pump
15. A-101A/B/C Lube Oil Cooler
16. N/A Lube Oil
17. N/A Seal Gas
18. TBD High Voltage Switch Gear/480 MCC Building
19. TBD Transformer (15 kV/480 V)
20. C-307 Air Compressor
21. V 308 Instrument Gas Recovery
22. TBD VFD
23. TBD VFD Cooler
24. TBD Transformer (66 kV/13.8 kV)

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Figure 3.5-1 Preliminary Central Compressor Station Plot Plan

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3.5.2 Trailer Facilities and Guard House

The existing office trailers utilized by SoCalGas Storage Field staff cover approximately 4,500 square feet (across multiple building structures). These temporary facilities are located to the south of the existing TDCs. A new location will be prepared and new office trailers will be placed. The proposed relocation site is represented on Figure 3.1-3 above.

The site for the proposed new trailer facilities will be cleared, graded and paved during associated site preparation activities for the proposed Central Compressor Station. Following proper soil compaction, the proposed new trailers will be delivered to the site and placed in the new location. The existing office trailers will be removed from service once the new trailers are in use. The existing trailers are standardized, modular facilities and will be hauled to appropriate waste and recycle facilities. On-site demolition would only occur if the trailers are deemed unstable for removal.

The existing guard house that currently provides vehicle entry off Sesnon Boulevard will remain in place as an access monitoring station and for locating Storage Field signage. The Proposed Project will consist of constructing a new guard house and access gate approximately 500 feet to the north of the existing guard house facility. The proposed location would allow two-lane ingress to the storage facility, allowing trucks to stage while also allowing workers and light vehicles to proceed without delivery truck check-in procedures. Placement of the new guard house further into the property will also improve traffic flow by allowing more vehicles to turn off Sesnon while waiting for admission to the Storage Field, thereby alleviating truck congestion at the Tampa/Sesnon intersection located at the facility entrance.

3.5.3 Aliso Canyon 12 kV Plant Power Line

A proposed PPL will be constructed by the Proponent and interconnected to the proposed SCE Natural Substation to provide service to the proposed Central Compressor Station. The proposed PPL will be connected to four 12 kV circuit breakers installed for dedicated service to the gas plant from the proposed SCE Natural Substation. The alignment of the PPL will be determined upon completion of final electrical and engineering evaluations of the proposed SCE Natural Substation and is represented on Figure 3.1-3. The PPL alignment, above grade or below grade, will be constructed pursuant to SDG&E design considerations which include and exceed applicable State of California General Orders (GO) 95 and 128.

Above-grade Alignment

If an above-grade alignment is chosen based on final engineering evaluation, overhead lines would be conductored on three TSPs. The TSPs would be mounted on engineered concrete foundations and 69 kV insulators would be installed to provide additional protection from the effects of pollution, fog and soot from wildfires.

Below-grade Alignment

If a below-grade alignment is chosen based on final engineering evaluation, special trenching and backfill methods would be required due to the rocky and heavily sloped terrain. Underground construction would require 6 parallel lengths of 15 kV thousand circular mils (kcmil) copper PECN-PEJ cable. Cables would be installed in multiple 5-inch reinforced concrete conduits terminating in manholes. Trench size, configuration, encasement and backfill would require a geotechnical survey and civil engineering due to the extreme slope and the prevalence of rock. Erosion control for the completed trench would be ongoing as it would tend to channel surface and subsurface water during periods of heavy rain. Access to manholes for construction and maintenance would require significant ground disturbance. Because the purpose of the manholes is for cable installation and replacement due to failures, permanent truck access and working space around the manholes would be required. Also, retaining walls would be required to prevent eroding soil from covering manhole covers and working space.

3.5.4 On-site SCE Natural Substation

Distribution service provided via the proposed SCE Natural Substation will be a 112 MVA, 66/12 kV customer dedicated substation. The proposed SCE Natural Substation will be unstaffed and automated; the equipment will be 66 kV low-profile which limits equipment heights to 17 feet. The proposed SCE Natural Substation equipment is presented in Table 3.5-2 below.

Table 3.5-2 Proposed SCE Natural Substation Equipment
112 MVA 66/12 kV Customer Dedicated Substation

Equipment	Description
66 kV Switchrack	The 66 kilovolt (kV) switchrack will be approximately 120 feet long (‘L) by (x) 65 feet wide (‘W) x 17 feet high (‘H). It will consist of both an operating bus and a transfer bus configuration, and will be open air. The switchrack will consist of seven positions; seven 66 kV circuit breakers, and one 66 kV capacitor bank. Each bus will be approximately 120 feet long and consist of one 1590 kcmil ACSR per phase.
12 kV Switchrack	The 12 kV low-profile switchrack will consist of twelve 9-foot wide bays accounting for seven equipped positions. At ultimate build-out, the wrap around design arrangement will allow for twenty-two positions. The 12 kV switchrack dimensions will be approximately 17’H x 108’L x 34’W.
Transformers	Transformation will consist of uo to four 28 MVA 66/12 kV transformers each equipped with a group operated isolating disconnect switch on the high and low voltage side, surge arresters and neutral current transformers. The transformer area dimensions will be approximately 15’H x 80’L x 42’W.
Capacitor Banks	One 66 kV capacitor bank will be installed. The capacitor bank enclosure dimensions will be approximately 17’H x 16’L x 13’W.
MEER (Mechanical Electrical and Engineering Room)	A pre-fabricated steel MEER will be erected and equipped with air conditioning, control and relay panels, battery and battery charger, alternative current (AC) and direct current (DC) distribution, human-machine interface (HMI) rack, communication equipment, telephone and local alarm. Control cable trenches will connect the MEER to the 66 kV switchrack, and to the 12 kV switchrack. MEER dimensions will be approximately 12’H x 36’L x 20’W.
Metering Apparatus	Each of the three new sub-transmission lines will be equipped with 66 kV revenue metering apparatus.

The proposed SCE Natural Substation facility will include typical SCE lighting structures which include fifteen 120 volt incandescent lamps rated at 120 watts. The light locations would be on the high-side switchrack, the transformer racks, and the low-side switchrack. These lights will manually turn on and off and will only be turned on during emergency work performed after dusk. The lights are typically mounted at a height of 7.5 feet. Additionally, a beacon safety light on the proposed SCE Natural Substation gate will activate when the gate is opened.

The location of the proposed SCE Natural Substation is approximately 1,800 feet west of the proposed Central Compressor Station site. The Proponent will grant SCE an easement in order to operate the proposed SCE Natural Substation equipment. The existing easement will be widened from 50 feet to approximately 150 feet for approximately 300 feet in length. Approval will be obtained from the CPUC pursuant to Section 851 of the Public Utilities Code. There will be a temporary chain-link fence constructed 10 feet from the proposed SCE Natural Substation perimeter to provide appropriate protection and security. A band of at least three strands of barbed wire will be affixed near the top of the perimeter wall inside the proposed SCE Natural Substation. The preliminary design and plot plan is presented on Figure 3.5-2 below.

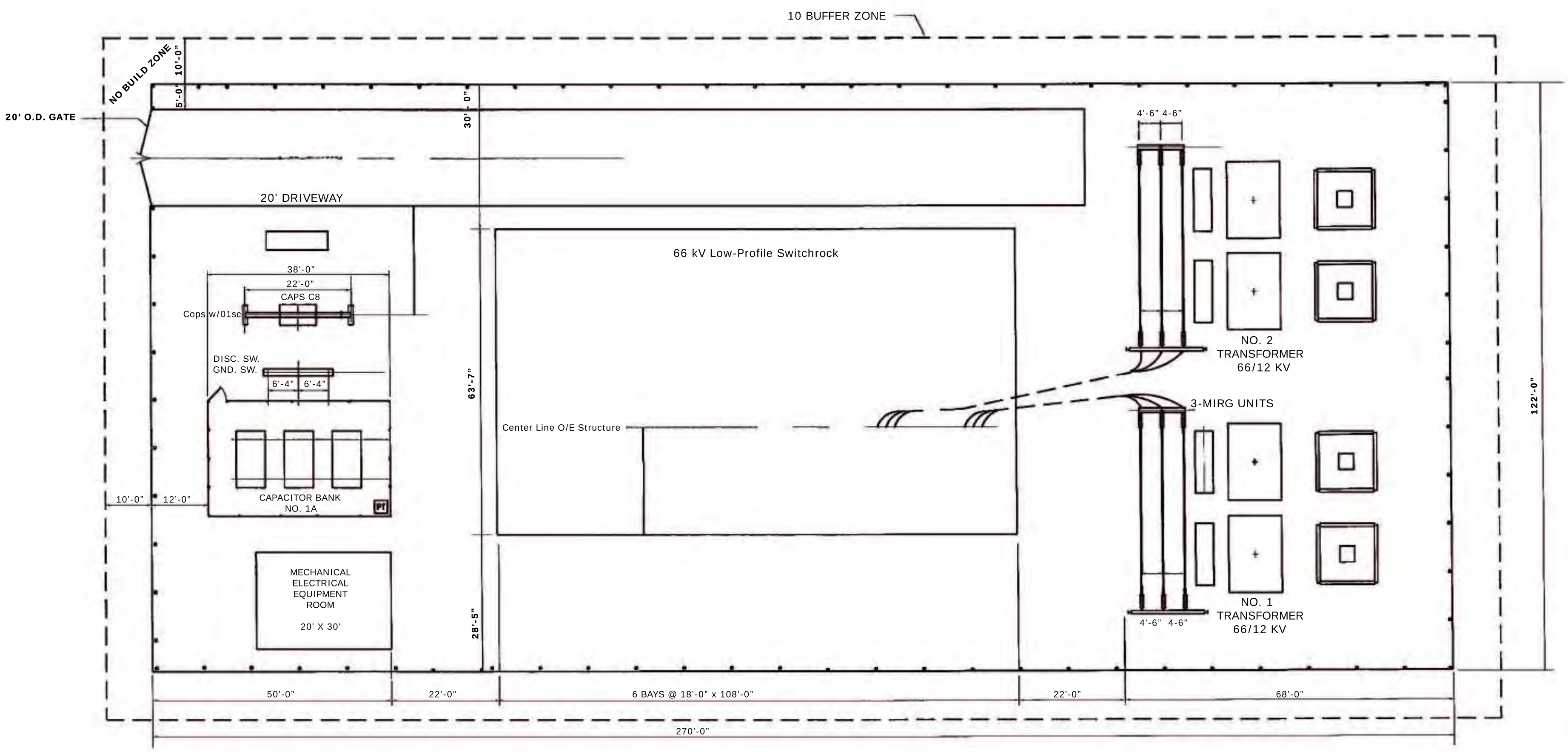

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Figure 3.5-2
Preliminary Substation Plot Plan

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Telecommunications System

The proposed SCE Natural Substation will contain a telecommunications facility to connect to the SCE existing telecommunication system. Telecommunications facilities will include fiber optic cables and relay protection equipment in the MEER. SCE will provide bidirectional 64 kilobyte (kbps) digital channel(s) (C37.94) for each pilot scheme, to be used for the new 3-terminal Natural-Newhall-San Fernando 66 kV line. SCE will provide bidirectional 64 kbps digital channel(s) (C37.94) for each pilot scheme, to be used for the new 2-terminal Chatsworth-Natural 66 kV line.

3.5.5 Off-site Electric Sub-transmission Line Modifications

Sub-transmission Electrical Service

The Proposed Project plans to modify the existing two SCE 66 kV sub-transmission lines, the SCE Chatsworth-MacNeil-Newhall-San Fernando line and the SCE MacNeil-Newhall-San Fernando line, and create a third line segment to provide electrical service to the proposed SCE Natural Substation. The proposed SCE 66 kV sub-transmission line modifications, including re-conductoring and the addition of the new circuit segment from the Chatsworth Tap point to the Proposed SCE Natural Substation on the same pole line, pole removal, H-frame removal, and TSP installation, will be conducted on portions of the existing two lines, as represented on the modified alignment on Figure 3-1-1. The proposed SCE Natural Substation will provide dedicated service to the gas plant.

Poles/Towers

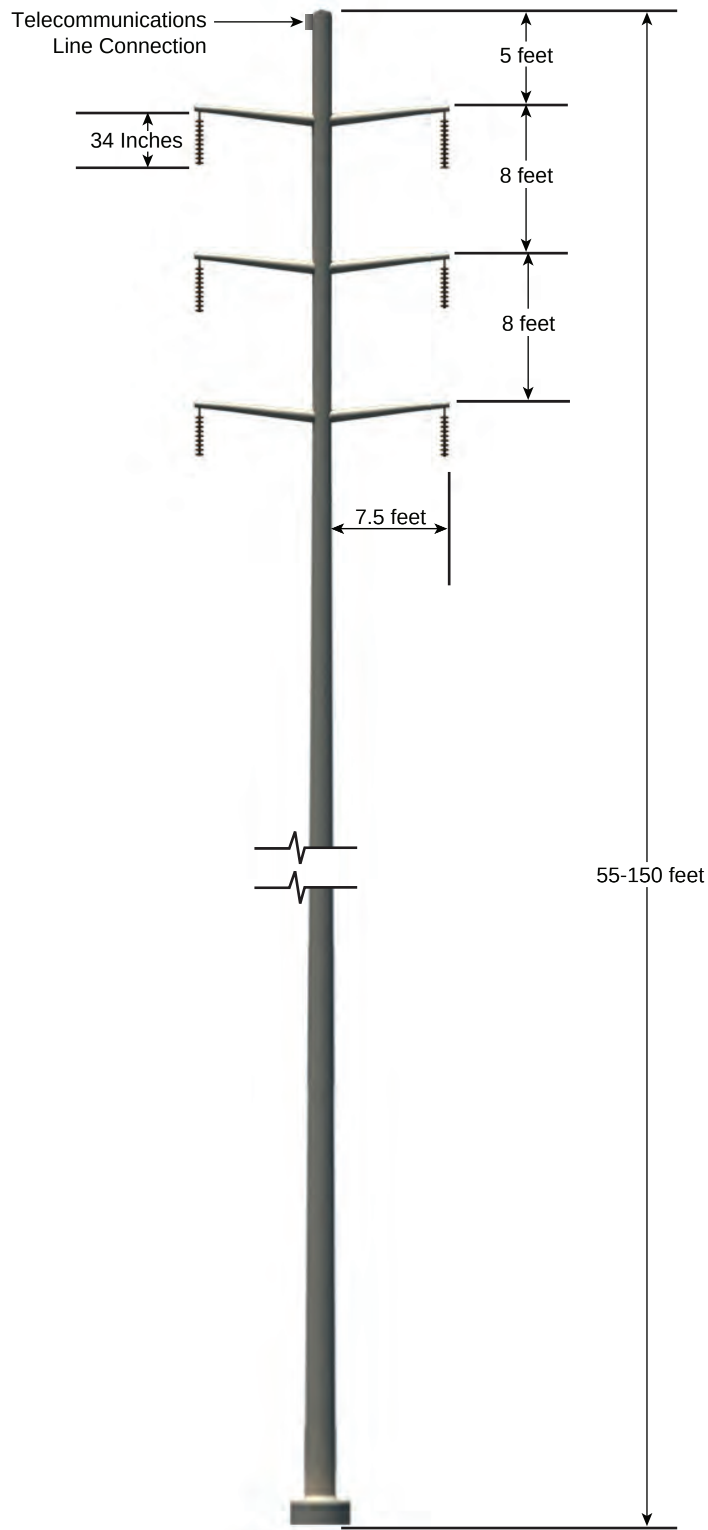
The Proposed Project includes pole replacement of the existing pole combination of H-frame wood and LWS structures and lattice steel towers (LSTs) with specially designed and engineered TSPs. The TSPs will range in height between 55 feet to 150 feet, with a nominal height of 85 feet, depending on site survey and engineering evaluation. Due to the terrain variation throughout the alignment, each pole will be specifically designed and engineered for each location. A typical 66 kV TSP is provided on Figure 3.5-2.

Originating at the SCE Chatsworth tap point A, between SCE's Newhall Substation and the Interstate 5 freeway crossing (see Figure 3.4-1), the sub-transmission work on the existing main-line will replace approximately 38 LSTs and wood structures with approximately 45 engineered TSPs. Additional poles may be required to maintain ground and conductor clearances. The existing double circuit 4/0 copper, 336.4 and 653.9 ACSR conductors will be replaced with double circuit 954 ASCR conductors (approximately 4.2 miles). Two new satellite controlled pole switches may be installed on the main-line. The sub-transmission work at the existing SCE Chatsworth tap line will replace approximately 22 existing LSTs and wooden and LWS H-frames with 28 engineered TSPs. The existing ACSR 336.4 conductors will be replaced with 954 ASCR conductors (approximately 20,800 linear feet). The existing SCE Chatsworth tap line, beyond (west of) tap point A, will be looped into and out of the proposed SCE Natural Substation. The new proposed SCE Chatsworth tap line segment, starting at tap point B, will be connected and extended to the proposed SCE Natural Substation. One new satellite controlled pole switch may be installed on the tap line.

The TSPs will primarily be set within existing ROWs and in the existing alignment. The approximate span length between the poles will be based on the current tower configuration. Based on known height above ground, the proposed TSP poles and towers are not anticipated to require any angle guys because they are engineered self-supporting structures.. If any conductor or structure height reaches more than 200 feet above ground level (AGL), marker balls or lights may be installed on the TSP or line span, if conditions warrant such installation.

Telecommunications Wiring

Fiber optic cable will be installed on the new sub-transmission structures and connect to the existing SCE telecommunications system. The telecommunications system will provide remote operation of unmanned facilities such as the new Natural Substation.



Aliso Canyon PEA

Figure 3.5-3
SCE Typical Tubular Steel Pole Design

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Re-conductoring

The existing SCE 66 kV lines originating at the Newhall Substation to the proposed SCE Natural Substation and to the Chatsworth tap point A (see Figure 3.4-1) will be re-conductored onto new poles to carry the increased capacity. SCE will utilize specific equipment and methods for replacing existing overhead transmission line conductors with new ones. The old conductor may be used to pull the new conductor or a sock-line through a series of sheaves installed at the bottom of each insulator at each tower. Conventional tension-stringing equipment is grounded.

The existing double circuit 4/0 copper, 336.4 and 653.9 conductors will be replaced with double circuit 954 ASCR conductors. Each pole will have 6 conductors – 3 on each side. The 954 ACSR wire configuration is made up of 45 strands of aluminum and 7 strands of ACSR, with a diameter of 1.165 inches. The insulators are polymer insulators. This material is hydrophobic (repels water) and minimizes the accumulation of surface contaminants such as soot and dirt, which in turn reduces the potential for corona noise to be generated at the insulators. Telecommunication lines will likely be installed on the poles with the conductors.

3.5.6 Off-site Substation Modifications

In order to integrate the proposed SCE 66 kV sub-transmission system modification into the grid, SCE will be required to perform certain work at existing SCE substations.

Additional Work at San Fernando Substation

Two loop sections will be installed into the San Fernando Substation rack to provide a loop-in connection. Based on preliminary engineering, one LST inside the substation will be replaced. In addition, there are three LSTs located outside the substation that will be removed or replaced. Two of the existing LSTs are located on Bishop Alemany High School north of the substation; one is located in Brand Park south of the substation in the existing SCE ROW, all within 350 feet of the substation. Two new engineered TSPs will likely be installed within the existing substation footprint and two will likely be placed on each side of the substation, resulting in a reduction in the number of structures on the Bishop Alemany High School site. Approximately 1,000 feet of 954 ACSR conductors will be installed on the new TSPs, including new conductors needed inside the substation. SCE will install four 66 kV circuit breakers, eight sets of disconnect switches, and other associated equipment to provide the San Fernando substation with two new positions.

Additional Work at Newhall, Chatsworth, and San Fernando Substations

In order to provide adequate protection during fault conditions, new equipment will be installed at SCE's Newhall, Chatsworth, and San Fernando Substations. At SCE's Newhall Substation, SCE will replace existing primary protection with one (1) General Electric (G.E.) L90 line current differential relaying system (to be used as System A pilot protection), and one (1) Schweitzer SEL-311L line current differential relaying system (to be used as System B pilot protection). Each relaying system will require separate CT connections, and a dedicated digital communication channel. Additionally at SCE's Newhall Substation, SCE will provide one (1) Schweitzer SEL-311C relay, on the 66 kV bus tie.

At SCE's Chatsworth Substation, SCE will replace the existing primary protection with one (1) G.E. L90 line current differential relaying system (to be used as System A pilot protection), and one (1) Schweitzer SEL-311L line current differential relaying system (to be used as System B pilot protection). Each relaying system will require separate CT connections, and a dedicated digital communication channel. Additionally at Chatsworth Substation, SCE will provide one (1) Schweitzer SEL-311C relay, on the 66 kV bus tie. All of the above described construction will be conducted within the existing substation boundary.

At SCE's San Fernando Substation, for each line, SCE will replace existing and add new primary protection, to each line, with one (1) G.E. L90 line current differential relaying system (to be used as System A pilot protection), and one (1) Schweitzer SEL-311L line current differential relaying system (to be used as System B pilot protection). Each relaying system will require separate CT connections, and a dedicated digital communication channel. Additionally, each line will require a new circuit breaker which may require an extension of the existing switchrack. All of the above described construction will be conducted within the existing substation boundary.

3.6 RIGHT OF WAY REQUIREMENTS

The proposed SCE Natural Substation and portions of SCE's 66 kV sub-transmission lines fall within the Proponent ROW and located entirely within the SoCalGas Storage Field property boundary; an easement will be granted by the Proponent to SCE in order to operate the proposed SCE Natural Substation in the new location. The existing easement will be widened from 50 feet to approximately 150 feet for approximately 300 feet in length. Approval will be obtained from the CPUC pursuant to Section 851 of the California Public Utilities Commission Code. All other work will be completed primarily within the existing ROW or SoCalGas private property.

3.7 CONSTRUCTION

This section describes specific construction elements of each major Proposed Project component, including the proposed Central Compressor Station, proposed office trailer relocation, proposed guard house relocation, the proposed on-site SCE Natural Substation, proposed PPL, proposed SCE sub-transmission line modifications, and proposed off-site substation modifications. This section also describes the construction schedule, staging and access requirements, and personnel and equipment requirements.

3.7.1 Central Compressor Station

The site is on previously disturbed hillside terrain. Construction activities will include clearing and grading; construction of building and equipment foundations; ground surface preparation at access points within the equipment area; erection of structures to house the compressors and associated control equipment; installation of equipment and piping; and cleanup and restoration of the site.

Construction activities associated with the proposed Central Compressor Station will typically occur Monday through Friday, and some Saturdays, depending on weather and material delivery. A preliminary construction schedule is shown on Figure 3.7-3 below. Construction of the proposed Central Compressor Station and installation of the new compressors and auxiliary equipment is estimated to last 22 months; the total duration including engineering design and procurement is estimated to last 30 months.

Turbine Decommissioning

Due to the critical role the Storage Field plays in SoCalGas' gas storage and distribution system, the existing TDC system will remain on stand-by for at least one injection cycle after project completion of the Proposed Project. If any unforeseen problem occurs with the new equipment and a lengthy delay in restart is contemplated, the stand-by equipment may be used for whatever injection capacity it can deliver. Once operational stability of the new equipment can be resumed, the existing TDC and associated equipment will be retired under the normal accounting process for utility retirement as in the past.

Prior to dismantling the TDC systems, the turbines, gears, compressors, coolers and ancillary equipment will be offered for sale as complete units or parts. The remaining structures, inlet plenum, exhaust stack, piping, controllers, valves, etc. will be sold as scrap metal to offset removal costs. Foundations will be removed and the site will be leveled to grade. Future use of the site is unknown at this time. The Proponent recognizes that the specific terms of turbine decommissioning will be determined in the future; however the expectation is that the decommissioning process will only remove the existing equipment and demolish the existing structure to the existing site grade. It is anticipated that decommissioning activities will not result in any impacts to resource areas equal or greater than construction of the Proposed Project.

Site Preparation and Grading

Site preparation and grading activities for the proposed Central Compressor Station site, the proposed SCE Natural Substation site, the proposed office trailer site and proposed guard house site will be conducted by SoCalGas. Prior to excavation and grading activities, three to four native Coast Live Oak trees and other vegetation may need to be removed.

A geotechnical analysis was conducted to determine the impacts to the proposed Central Compressor Station site drainage, ditches and culverts. The geotechnical analysis determined the site would need approximately 50,000 cubic yards of engineered fill after excavation prior to facility construction. Excavation activities are estimated to remove 100,000 cubic yards of unsuitable fill material, which will be hauled to an onsite soils processing area for re-engineering. Figure 3.7-1 represents the soils processing site, or Porter 32, that will be utilized during construction; Porter 32 is an existing site utilized for backfill and processing activities during plant operations. An existing paved haul route will be utilized to transport excavated materials to the soils processing site. The haul route, presented on Figure 3.7-2, is approximately 1.5 miles roundtrip.

Excess excavated soil will be used on site or will be disposed of in an approved manner. No excess soil is expected to be hauled offsite as a result of the Proposed Project. The proposed Central Compressor Station building construction will begin after the VFD motors are installed on concrete foundations. After completion of construction, start-up, and testing of the equipment, the proposed Central Compressor Station site will be final graded, and disturbed areas will be graveled or paved.

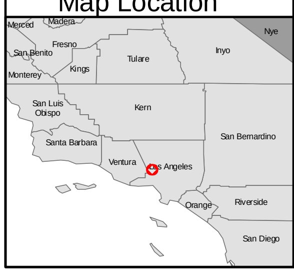
Access Roads and Staging Areas

The proposed Central Compressor Station site is an existing disturbed area within the Plant Station. Existing well-maintained, paved roads will be used to access the site during construction and operation; additional access roads will not be required. Existing disturbed areas and wellhead sites will be utilized as staging areas to store equipment and materials during construction. The primary uses at the staging areas will be material and equipment storage, pipe spool fabrication, and worker reporting. Figure 3.7-1 represents the proposed staging areas, including Porter 42 (P-42), Porter 37 (P-37), and Porter Fee Road, that will be used during construction of the proposed Central Compressor Station, proposed office trailer and guard house relocation, proposed PPL, and proposed SCE Natural Substation (which are also presented on Figure 3.7-1). The proposed staging areas will not require additional security fencing due to the additional security provided by the guarded facility entrance.

Site P-42 (approximately 1-acre) and site P-37 (approximately 0.85-acre) are existing wellhead sites. The wells will be removed from service and plugged downhole during construction activities. The well laterals will be removed and steel cages will be placed over the wellheads for protection. The wells will be restored immediately after construction activity. These sites will not require brush clearance or grading due to the existing site activity. The third staging area located along Porter Fee Road (~ 0.5-acre) may require minor grading and clearance due to the lack of activity at the site. Small portable generators (50 HP) will be used as needed to provide power services to equipment in this staging area. Site P-42 and P-37 wellheads will be placed back into service following construction.

SoCalGas will conduct site clearing, grading, and paving activities at the proposed SCE Natural Substation location. In addition, the existing access road will need to be re-habilitated including grading, widening, and paving. The length of the access roads required for re-habilitation is presented on Figure 3.7-2, and further discussed in Section 3.7-3.

Map Location



Legend

Proposed SCE 66 kV Modification

Existing SCE 66 kV Alignment

PPL

1 inch = 750 feet

0 750 1,500 Feet

N E S W

Aliso Canyon PEA

Figure 3.7-1
Central Compressor Station Staging Areas

Southern California Gas Company

A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Map Location

Legend

Excavation/Re-engineer Haul Route

Road Upgrade (grading/paving)

1 inch = 750 feet

0 750 1,500 Feet

Aliso Canyon PEA

Figure 3.7-2
Haul Routes and Road Upgrades

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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3.7.2 Trailer Facilities and Guard House

The site for the proposed office trailers is a previously disturbed site, represented on Figure 3.7-1. Prior to construction, site preparation including over excavation will be required to meet proper compaction requirements and will include an approximately 10-foot perimeter from the existing pad. There are no existing trees and only light brush on the site. The existing trailer facilities will be removed from service upon completion of site grading and preparation of the proposed office trailer location. The existing office trailers are standardized, modular facilities and will be removed and hauled off-site to a disposal and recycling facility.

The proposed guard house relocation site is represented on Figure 3.7-3. In addition to the facility relocation, a portion of the existing road will be widened, by approximately twelve feet, to provide two lanes for traffic flow. Construction will involve excavation, compaction, a retaining wall and utilities. The existing guard house will remain because of signage, security monitoring and security requirements. Associated construction activities will proceed early to allow ease of entry during construction and remedy future equipment staging and vehicle congestion at the facility entrance.

Map Location

N
W E
S

1 inch = 200 feet

0 200 400 Feet

Aliso Canyon PEA

Figure 3.7-3
Proposed Aliso Canyon Guard House Relocation

Southern California Gas Company — A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_3-7-3_Proposed_Guard_House_Relocation.mxd

3.7.3 Aliso Canyon 12 kV Plant Power Line

The proposed PPL will be installed by the Proponent from the proposed SCE Natural Substation to the proposed Central Compressor Station. The dedicated PPL may be constructed either underground or aboveground, depending upon the final engineering evaluation of the site. If the aboveground alignment is chosen, the PPL will need three TSPs. Construction methods for both underground and aboveground distribution activities will meet SDG&E standards and comply with GO 128 and GO 95. General methods for underground construction activities are presented below. General methods for aboveground construction will be similar to the methods described in Section 3.7.4.

Underground Construction

If a below-grade alignment is chosen based on the final engineering evaluation, special trenching and backfill methods would be required due to the rocky and heavily sloped terrain. Underground construction would require multiple parallel lengths of cable. Cables would be installed in conduits terminating in manholes. Trench size, configuration, encasement and backfill would require a geotechnical survey and civil engineering due to the extreme slope and the prevalence of rock. Erosion control for the completed trench would be ongoing as it would tend to channel surface and subsurface water during periods of heavy rain. Accessing manholes for construction and maintenance would require significant ground disturbance. Also, retaining walls would be required to prevent eroding solids from covering manhole covers and working space.

3.7.4 SCE Natural Substation and SCE 66 kV Sub-transmission Facilities

Construction of the proposed SCE Natural Substation and proposed SCE 66 kV sub-transmission line modifications will include land surveys, substation site construction, replacement of existing structures, installation of new sub-transmission structures, telecommunication system installation, as well as construction support activities such as establishing a marshalling yard and rehabilitating existing access roads to TSP sites. The following sections provide more detailed information about the construction tasks that will be associated with the proposed SCE Natural Substation and proposed modifications to two SCE 66 kV sub-transmission lines.

SCE is in the preliminary design phase for the Proposed Project and plans to design the final height and locations of the TSPs after SoCalGas receives final CPUC approval. Following project approval, SCE will establish marshalling yard locations, and develop engineering drawings for the substation site grading permit application that will include perimeter wall design and landscape plans. These components are described in more detail below.

Siting

For siting, a detailed survey of the 66 kV sub-transmission source line would be conducted, additional ROW acquired, and detailed engineering designs started. A control centerline would be established, based on field survey measurements. Control monuments, consisting of 2-inch diameter iron pipes sealed with a stamped brass cap would be set at maximum intervals of approximately 2.0 miles. Visual reference points parallel and perpendicular to the control line would be established so that photogrammetric profiles of the area's topography could be compiled. Approximate structure locations would be spotted on the profiles according to the engineering design criteria. Once approximate structure locations have been selected, exact positions would be field surveyed. During this phase of the work, site adjustments are made to avoid an environmental sensitivity or to maintain structure integrity and sustainability. Structure location approval and clearance procedures are discussed in the following section.

Survey crews would also locate spur road centerlines, grades, and soil boring locations. Final determinations of road location curvature, cuts and fills, grades and drainage, and necessary erosion controls would be made in accordance with design standards and practices and/or landowner requirements.

Substation Site Preparation and Grading

The proposed SCE Natural Substation site will be prepared by clearing existing vegetation and installing a temporary chain link fence to surround the construction site. The site will be graded in accordance with approved grading plans. The area to be enclosed by the proposed SCE Natural Substation perimeter wall will be graded to a slope that varies between 1 to 2 percent and compacted to 90 percent of the maximum dry density. The areas outside the proposed SCE Natural Substation wall that will be used as a buffer will be graded in a manner consistent with the overall site drainage design. Final site drainage will be subject to the conditions of the grading permit obtained from the city of Los Angeles/county of Los Angeles.

The proposed SCE Natural Substation grading design will incorporate Spill Prevention Control and Countermeasure (SPCC) Plan requirements due to the planned operation of oil-filled transformers at the proposed SCE Natural Substation (in accordance with 40 Code of Federal Regulations (CFR) Part 112.1 through Part 112.7). Typical SPCC features include curbs and berms designed and installed to contain spills, should they occur. These features will be part of SCE’s final engineering design for the Proposed Project.

The existing access road to proposed SCE Natural Substation location will need to be graded, paved and widened to allow for material delivery and equipment transport to the site. Figure 3.7-2 above represents the length of rehabilitation work the existing access roads would require. SoCalGas would perform road work in accordance to requirements established in the grading permit. A description of construction activities typically conducted during access road rehabilitation is described below.

Below Grade Construction

After the proposed SCE Natural Substation site is graded, below grade facilities will be installed. Below grade facilities include a ground grid, trenches, equipment foundations, utilities, and the footing of the proposed SCE Natural Substation wall. The design of the ground grid will be based on soil resistivity measurements collected during a geotechnical investigation to be conducted prior to construction.

Access Roads and Spur Roads

Transmission line roads are classified into two groups: access roads and spur roads. Access roads are through roads that run between pole/tower sites along a ROW and serve as the main transportation route along line ROWs. Spur roads are roads that lead from line access roads and terminate at one or more structure sites. New access or spur roads could be required for the Proposed Project, if additional pole locations are needed to maintain conductor and ground clearances.

This project includes construction on existing ROW. Where construction takes place on existing ROW, it is assumed that most of the existing access roads as well as spur roads would be used. However, it is also assumed that rehabilitation work would be necessary in some locations for existing roads to accommodate construction activities. This work may include:

- Re-grading and repair of existing access and spur roads. These roads would be cleared of vegetation, blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum drivable width of 14 feet (preferably with 2 feet of shoulder on each side).

- Drainage structures such as wet crossings, water bars, overside drains and pipe culverts would be installed to allow for construction traffic usage, as well as prevent road damage due to uncontrolled water flow.

- Slides, washouts, and other slope failures would be repaired and stabilized by installing retaining walls or other means necessary to prevent future failures. The type of structure to be used would be based on specific site conditions.

If construction would take place in new ROW, new access, and spur roads would be necessary to access the transmission line structure locations. Similar to rehabilitation of existing roads, all new road alignments would first be cleared and grubbed of vegetation. Roads would be blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum drivable width of 14 feet (preferably with 2 feet of shoulder on each side) but may be wider depending on final engineering requirements and field conditions.

Access and spur road gradients would be leveled so that any sustained grade does not exceed 12 percent. Grades of approximately 14 percent would be permitted when such grades do not exceed 40 feet in length and are located more than 50 feet from any other excessive grade or any curve. All curves would have a radius of curvature of not less than 50 feet, measured at the center line of the usable road surface. Spur roads would be an average of 100 feet long and would usually have turnaround areas near the structure locations. Longer or slightly wider spur roads may be needed in some locations. All dead-end spur roads over 500 feet long would include a Y-type or circle-type turnaround.

In addition, drainage structures (e.g., wet crossings, water bars, overside drains, pipe culverts, and energy dissipaters) would be installed along spur and access roads to allow for construction equipment usage as well as to prevent erosion from uncontrolled water flow. Slides, washouts, and other slope failures would be repaired and stabilized along the roads by installing retaining walls or other means necessary to prevent future failures. The type of mechanically stabilized earth-retaining structure to be used would be based on site-specific conditions. Final drainage design will be determined upon approval of applicable grading permits from the City of Los Angeles/County of Los Angeles.

It is anticipated that most of the roads constructed to accommodate new construction would be left in place to facilitate future access for operations and maintenance purposes. Gates would be installed where required at fenced property lines to restrict general and recreational vehicular access to road ROWs. Construction roads across areas that are not required for future maintenance access would be removed and restored after construction is completed. An example of this type of road would be a road constructed to provide access to a splice location during wire-stringing operations. Splice locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the stringing travelers located on transmission structures. Access roads to splice locations are sometimes required when a splice location is not accessible from an access or spur road.

Marshalling Yard

Construction of the Project transmission line would begin with the establishment of approximately one temporary marshalling yard located at a strategic point along the route. SCE plans to utilize SCE's existing Northern Transmission/Substation Regional Facility, located near Pardee Substation in the city of Santa Clarita, as the primary Marshalling Yard. SCE or its contractors may utilize additional construction yards as needed to optimize construction efficiency; such as existing yards within the Proponent property boundaries.

Each yard would be used as a reporting location for workers, and for vehicle and equipment parking and material storage. The yards would have offices for supervisory and clerical personnel. Normal maintenance of construction equipment would be conducted at these yards. The maximum number of workers reporting to any one yard is not expected to exceed approximately 42 workers at any one time. Each yard would be 2 to 20 acres in size, depending on land availability and intended use. Preparation of the marshalling yards would include the application of road base, depending on existing ground conditions at the yard site, and the installation of perimeter fencing.

At peak construction, most of the vehicles could occupy the yards listed. Crews would load materials onto work trucks and drive to the line position being worked. At the end of the day, they would return to the yard in their work vehicles and depart in their private vehicles. Materials stored at the marshalling yards would include:

- Construction trailers
- Construction equipment
- Steel Poles
- Conductors / Wire Reels
- OPGW cable
- Hardware
- Insulators
- Signage
- Consumables, such as fuel and joint compound
- Storm Water Pollution Prevention Plan (SWPPP) materials; such as straw wattles, gravel, and silt fences
- Portable sanitation facilities
- Waste materials for salvaging, recycling, or disposal

In addition to the primary marshalling yards, temporary secondary material staging yards would be established for short-term utilization near construction sites. Where possible, the secondary staging yards would be sited in areas of previous disturbance along the construction corridors. Final siting of these yards would depend upon availability of appropriately zoned property that is suitable for this purpose. The number and size of the secondary yards would be dependent upon a detailed ROW inspection and suggestions by the work crew. Typically, an area approximately 1 to 3 acres would be required. Once sites for secondary yards are proposed, biological and cultural resource reviews would be conducted if required before final site selection. Preparation of the secondary staging yards would include installation of perimeter fencing, the application of road base may also occur, depending on existing ground conditions at the yard site. Land disturbed at the temporary material staging areas, if any, would be restored to preconstruction conditions or to the landowner's requirements following the completion of construction for the Proposed Project.

Substation Equipment Installation

Above grade installation of proposed SCE Natural Substation facilities (i.e., buses, capacitors, circuit breakers, transformers, steel support structures, and the MEER) will commence after the below grade structures are in place. The transformers will be delivered by heavy-transport vehicles and off-loaded on-site by large cranes with support trucks. A traffic control service may be used for transformer delivery, if necessary.

Foundation Installation

The Proposed Project would require the construction of approximately 70 tubular steel poles (TSPs). Each structure would require a single drilled, poured-in-place, concrete footing that would form the structure foundation. Actual footing diameters and depths for each of the structure foundations would depend on the soil conditions and topography at each site and would be determined during final engineering.

The Proposed Project is in mostly elevated terrain and would likely take 3 days to 5 days for a single TSP foundation to be completed. In normal terrain, a single foundation for a TSP would typically be completed in 3 days.

Construction activities would begin with the survey of the 66kV sub-transmission line routes. Survey crews would stake the steel pole locations, including reference points and centerline hubs. Survey crews would also survey limits of grading for steel pole excavations.

The foundation process starts with the drilling of the holes for each structure. The holes would be drilled using truck or track-mounted excavators with various diameter augers to match the diameter requirements of the structure. TSPs typically require an excavated hole up to approximately 10 feet in diameter. The maximum depth below ground level for the TSPs is expected to be between 16 feet to 30 feet. On average, in residential areas, TSP footings will project approximately 0-2 feet above ground level and in uninhabited areas, TSP footings will project approximately 1-3 feet above ground level.

The excavated material will be distributed at each structure site, used to backfill excavations from the removal of nearby wood and LWS poles or LSTs, used at the substation site, or used in the rehabilitation of existing access roads. Alternatively, the excavated soil may be disposed at an off-site disposal facility in accordance with all applicable laws.

Following excavation of the foundation footings, steel reinforced cages would be set, survey positioning would be verified, and concrete would then be placed. Steel reinforced cages would be assembled at laydown yards and delivered to each structure location by flatbed truck. Typically TSP structures would require 30 to 100 cubic yards of concrete delivered to each structure location.

Foundations in soft or loose soil and that extend below the groundwater level may be stabilized with drilling mud slurry. Mud slurry will be placed in the hole after drilling to prevent the sidewalls from sloughing. The concrete for the foundation is then pumped to the bottom of the hole, displacing the mud slurry. The mud slurry brought to the surface is typically collected in a pit adjacent to the foundation, and then pumped out of the pit to be reused or discarded at an off-site disposal facility in accordance with all applicable laws.

During construction, existing concrete supply facilities would be used where feasible. Concrete samples would be drawn at time of pour and tested to ensure engineered strengths were achieved. A normally specified SCE concrete mix typically takes approximately 20 working days to cure to an engineered strength. This strength is verified by controlled testing of sampled concrete. Once this strength has been achieved, crews would be permitted to commence erection of the structure. Conventional construction techniques would generally be used as described above for new footing installations using hand labor assisted by hydraulic or pneumatic equipment, or other methods.

Prior to drilling for foundations, SCE or the Contractor would contact Underground Service Alert to identify any underground utilities in the construction zone.

Tubular Steel Pole Assembly and Erection

Laydown areas would be established for the steel pole assembly process and would generally occupy an area of 200 feet by 100 feet (0.46 acre) at each TSP location. Laydown areas may require grading, leveling, or cleared of vegetation to accommodate the new structures.

Steel pole assembly would consist of hauling in TSP sections from the staging area to their designated laydown site using semi-trucks with 40-foot trailers. Rough terrain cranes would then lay the individual TSP sections on the ground at each location. While on the ground, the top section may be pre-configured with the necessary insulators and wire-stringing hardware. The steel poles could either be assembled into a complete structure or set one piece at a time by stacking and jacking them together. This would depend largely on the terrain and available equipment.

An 80-ton all-terrain or rough terrain crane would be used to position each steel pole base section on top of previously prepared foundations. When the base section is secured, the top section of the TSP would be placed above the base section. The two sections may be spot welded together for additional stability.

If existing terrain is not suitable to support crane activities, a temporary 50 feet by 50 feet (0.06 acre) crane pad will be constructed. The crane pad would be would be located transversely and set up approximately 60 feet from the centerline of each structure. The crane would move in and out of the ROW for structure erection purposes as necessary.

Wire Stringing Activities

Wire stringing activities would be conducted in accordance with SCE specifications, which is similar to process methods detailed in IEEE Standard 524-2003, Guide to the Installation of Overhead Transmission Line Conductors.

The existing double circuit 4/0 copper, 336.4 and 653.9 conductors will be replaced with double circuit 954 ASCR conductors. Each TSP will have 6 conductors – 3 on each side. The 954 ACSR wire configuration is made up of 45 strands of aluminum and 7 strands of steel, with a diameter of 1.165 inches. The insulators are polymer insulators, which reduce noise impacts. Telecommunication lines will likely be installed on the TSPs with the conductors.

Wire stringing includes all activities associated with the installation of the conductors onto TSPs. These activities include the installation of primary conductor and OPGW or ground wire, vibration dampeners, weights, suspension and dead-end hardware assemblies. Insulators and stringing sheaves (rollers or travelers) are also attached as part of the re-conductoring efforts during wire-stringing activities. A standard wire-stringing plan includes a sequenced program of events starting with determination of wire pulls and wire pull equipment set-up positions. Advanced planning by supervision determines circuit outages, pulling times, and safety protocols needed for ensuring that safe installation of wire is accomplished.

Wire pulls are the length of any given continuous wire installation process between two selected points along the line. Wire pulls are selected, where possible, based on availability of dead-end structures at the ends of each pull, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment setups. Typically, wire pulls occur approximately every 13,000 feet on flat terrain or less in rugged terrain. Generally, pulling locations and equipment set-ups would be in direct line with the direction of the overhead conductors and established a distance approximately three times the height away from the adjacent structure. The exact locations of the pulling sites would be determined during construction.

To ensure the safety of workers and the public, safety devices such as traveling grounds, guard structures, and radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire-stringing activities.

The following four steps describe the wire installation activities proposed by SCE:

- Step 1: Sock Line, Threading: If a bucket truck is unable to install a lightweight sock line, a helicopter would fly the lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull.

- Step 2: Pulling: The sock line would be used to pull in the conductor pulling cable. The conductor pulling cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel.

For the Proposed Project, if possible, the old conductor will be transferred to the new TSPs and then used to pull in the new conductors.

- Step 3: Splicing, Sagging, and Dead-ending: After the conductor is pulled in, all midspan splicing would be performed. Once the splicing has been completed, the conductor would be sagged to proper tension and dead-ended to structures.

- Step 4: Clipping-in: After the conductor is dead-ended, the conductors would be attached to all tangent structures; a process called clipping in.

As noted in Step 1 above, the threading step of wire installation may require the use of one helicopter. On average, the helicopter would operate approximately 6 hours per day during stringing operations. The operations area of the helicopter would be limited to helicopter staging areas and are considered safe locations for landing. Final siting of staging areas for the Proposed Project would be conducted with the input of the helicopter contractor, and affected private landowners and land management agencies. The size of each staging area would be dependent upon the size and number of structures to be removed and installed. Staging areas would likely change as the work progresses along the transmission lines.

Helicopter fueling would occur at staging areas or at a local airport using the helicopter contractor's fuel truck, and would be supervised by the helicopter fuel service provider. The helicopter and fuel truck would stay overnight at a local airport or at a staging area if adequate security is in place.

The dimensions of the area needed for the stringing set-ups associated with wire installation are variable and depends upon terrain. The preferred minimum size needed for tensioning equipment set-up sites requires an area of 500 feet within the existing SCE easement by 100 feet, the preferred minimum size needed for pulling equipment set-up sites requires an area of 300 feet within the existing SCE easement by 100 feet, the preferred minimum size needed for splicing equipment set-up sites requires an area of 150 feet within the existing SCE easement by 100 feet; however, crews can work from within slightly smaller areas when space is limited. Each stringing operation would include one puller positioned at one end and one tensioner and wire reel stand truck positioned at the other end. Splicing sites would be strategically located to support the stringing operations; splicing sites include specialized support equipment such as skidders and wire crimping equipment.

The puller, tensioner, and splicing set-up locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the rollers located on each structure, and are necessary as the permanent splices that join the conductor together cannot travel through the rollers. For stringing equipment that cannot be positioned at either side of a dead-end transmission structure, field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension. The puller, tensioner, and splicing set-up locations require level areas to allow for maneuvering of the equipment. When possible, these locations would be located on existing level areas and existing roads to minimize the need for grading and cleanup.

The puller, tensioner, and splicing set-up locations associated with the Proposed Project would be temporary and the land would be restored to its previous condition following completion of pulling and splicing activities. Estimates of the total land disturbance associated with this activity for the proposed route is between 3.4 and 5.7 acres, with no permanent disturbance. The final number and locations of the puller, tensioner, and splicing sites will be determined during final engineering for the Proposed Project and the construction methods chosen by SCE or its Contractor.

Removal and Demolition of Existing Structures

The Proposed Project includes the removal of existing sub-transmission line equipment, including existing 66 kV towers and poles and associated hardware (i.e., insulators, vibration dampeners, suspension clamps, ground wire clamps, shackles, links, nuts, bolts, washers, cotter pins, insulator weights, and bond wires), as well as the subtransmission line primary conductor and ground wire. Existing 66 kV sub-transmission circuits will be transferred to the new structures to assist in the new conductoring activities where possible and the existing poles and LSTs will be removed.

The standard work practice for removing a pole is to attach a sling to the pole, using boom or crane equipment, while using a hydraulic jack at the base to vertically lift the pole until it can be lifted out of the ground. Excavation around the base of the pole is only required in the event the base of the pole has been encased in hardened soil or man-made materials (e.g., asphalt or concrete).

Once the pole is removed, the hole will be backfilled using imported fill in combination with soil that may be available as a result of excavation for the installation of TSP foundations. The backfill material will be thoroughly tamped and the filled hole will be leveled to grade.

SCE proposes to remove the existing 66kV structures through the following activities:

- Set Up: Existing access routes would be used to reach structure sites, but some rehabilitation work on these routes may be necessary before removal activities begin. In addition, grading may be necessary to establish temporary crane pads for structure removal.
- Structure Removal: For each type of structure, a crane truck or rough terrain crane will be used to support structure during removal; a crane pad of approximately 50 feet by 50 feet may be required to allow a removal crane to be set up at a distance of 60 feet from the structure center line. The crane rail would be located transversely from the structure locations.
- Footing Removal: The existing LST and H-frame footings would be removed to a depth of approximately 1-2 feet. Holes would be filled, compacted, and then the area would be smoothed to match surrounding grade.

SCE proposes to remove the existing 66kV conductor through the following activities:

- Wire Pulling Locations: Wire-pulling locations are an estimated 300 feet by 100 feet in size and would be sited no more than every 6,000 feet along the utility corridor, and would include locations at dead-end structures and turning points. It is anticipated that many of the same locations would be used for installation of the new 66kV lines. Wire-pulling equipment would be placed at these locations.
- Pulling Cable: A 3/8-inch pulling cable would replace the old conductor as it is being removed; this allows complete control of the conductor during its removal. The 3/8-inch line would then be removed under controlled conditions to minimize ground disturbance, and all wire-pulling

- Pulling Cable: A 3/8-inch pulling cable would replace the old conductor as it is being removed; this allows complete control of the conductor during its removal. The 3/8-inch line would then be removed under controlled conditions to minimize ground disturbance, and all wire-pulling equipment would be removed. Where possible, the existing conductor will be transferred to the new structures to pull in the new conductor.

- Breakaway Reels: The old conductor wire would be wound onto “breakaway” reels as it is removed. The old conductor would be transported to a marshalling yard where it would be prepared for recycling.

Energizing 66 kV Sub-transmission Lines

The final step in completing the proposed modification to two SCE 66 kV sub-transmission lines involves energizing the new conductors. The existing sub-transmission line will be de-energized in order to connect the proposed 66 kV sub-transmission source lines to the existing 66 kV sub-transmission system. Once the connections are made, the existing 66 kV sub-transmission lines will be returned to service (re-energized).

Traffic Control

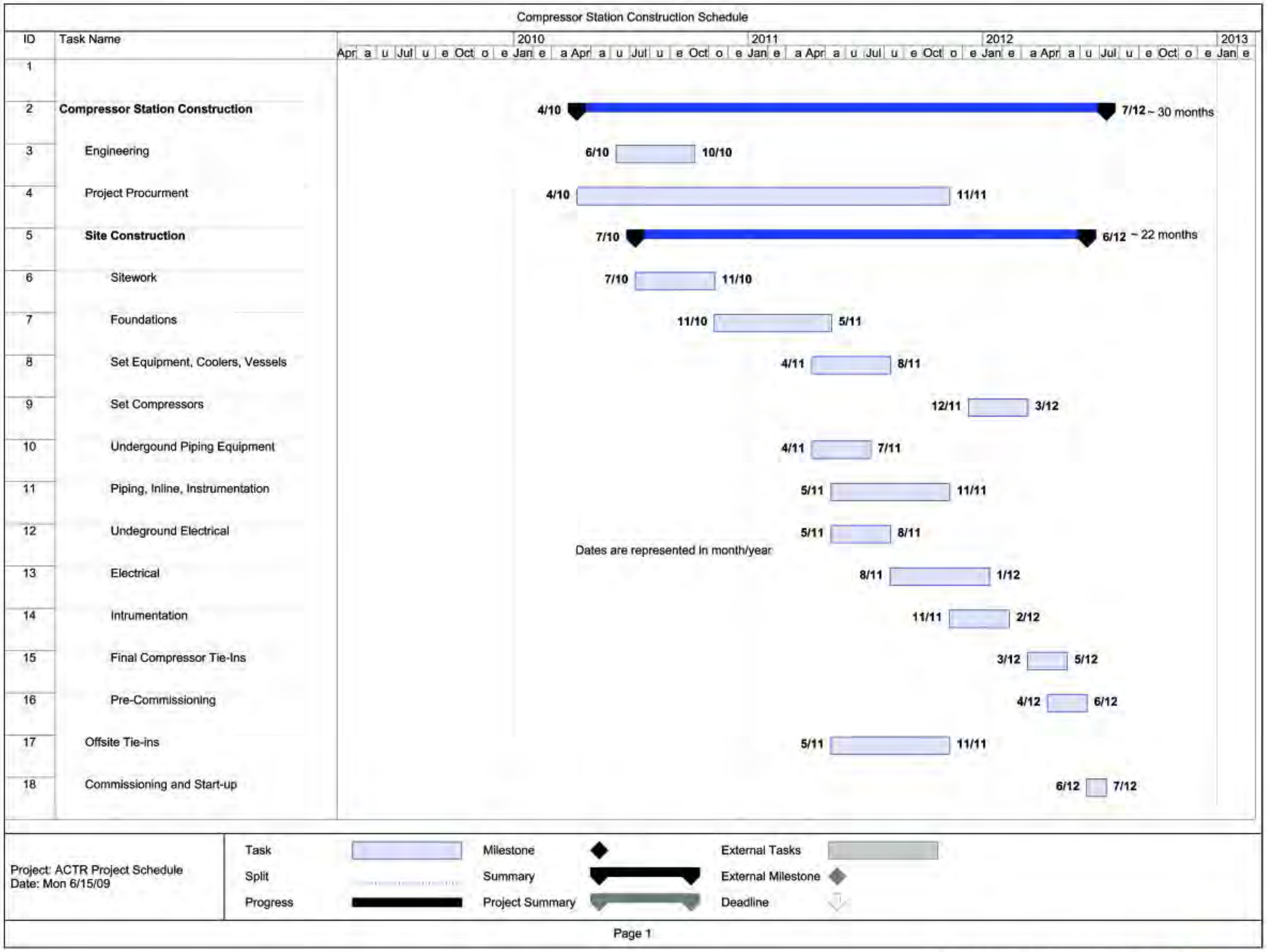
Construction activities completed within public ROWs will require the use of a traffic control service and all lane closures will be conducted in accordance with local ordinances and applicable permit conditions. These traffic control measures are typically consistent with those published in the Work Area Traffic Control Handbook (WATCH manual).

Nighttime Construction

Under normal circumstances, construction of the Proposed Project will occur during daylight hours. However, there is a possibility that some construction will occur at night, and temporary artificial illumination will be required. SCE will use lighting to protect the safety of the construction workers, but orient the lights to minimize their effect on any nearby receptors.

3.7.5 Construction Schedule and Equipment List

Construction related activities associated with the Proposed Project are anticipated to begin in June 2010. Construction will begin following receipt of the General Permit, granted by the CPUC. Once the General Permit is in place, construction of the proposed Central Compressor Station, the proposed SCE Natural Substation, and modifications to SCE’s 66 kV sub-transmission lines will occur on concurrent schedules. Construction of the proposed Central Compressor Station is anticipated to last 22 months. Construction of the proposed SCE Natural Substation and sub-transmission facilities is anticipated to last 9 months, not including equipment purchasing and ordering. However, the sub-transmission line construction could take up to 15 months if delayed due to access or inclement weather.



Aliso Canyon PEA

Figure 3.7-4
Preliminary Proposed Central Compressor Station Construction Schedule

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

Central Compressor Facility

The construction of the proposed Central Compressor Station is anticipated to last 22 months, the preliminary construction schedule is represented on Figure 3.7-3 above.

The estimated equipment list and duration required for construction of the proposed Central Compressor Station and other related facilities is presented in Table 3.7-1 below.

Table 3.7-1 Construction Equipment List for the Proposed Central Compressor Station

Equipment Type	Number of Equipment	Duration
Site Construction		
¾-Ton Pickup Truck	15	22 months
50-Ton Hydraulic Crane	1	12 months
30-Ton Hydraulic Crane	2	12 months
200-Ton Crawler Crane	1	12 months
6-Ton Truck	2	12 months
Forklifts	2	12 months
Backhoe/Loader	2	12 months
Water Truck (2000 gallons)	1	12 months
Grader	1	12 months
D6 Dozer	1	12 months
Dump Truck (10 yards)	1	12 months
Sheep's Foot Vibrator Compactor (10 yards)	2	12 months
Excavator	1	6 months
Front End Loader	1	6 months
Dump Truck (20 yards)	6	4 months
Dump Truck (20 yards)	12	2 months
Drill Rig (Drilling Piers)	1	6 weeks
Paver/Sealer	1	2 weeks
Total Material Delivery Truck Loads	1,050 loads	22 months

Plant Power Line (12 kV)

The estimated schedule and equipment list required for construction of the proposed PPL and other related facilities is presented in Table 3.7-2 below. The presented equipment list represents either above ground or below ground construction.

Table 3.7-2 Estimated Construction Equipment List for the Proposed 12 kV PPL

Estimated Equipment	Number of Equipment	Hours of Operation	Duration (days)
Backhoe	2	6	90
Hauler	1	4	90
Skid Steer Loader	2	4	90
Water Truck	1	6	90
Concrete Truck	1	4	90
Ditch Witch	1	6	90
Batch Plant	1	8	90
Drill Rig	2	6	90
Truck with Trailer (equipment delivery)	2	2	90
Compressor	1	2	90
Construction Fork	1	6	90
980 Loader	1	4	90
Boom Truck	1	4	90
Bucket Truck	1	4	90
Vibrating Roller	1	4	90

Trailer Facilities and Guard House Relocation

Construction activities associated with the office trailer relocation will commence with site preparation, soil compaction, and grading of the proposed new office trailer location. Four new pre-fabricated trailers will be delivered to the site and placed in the designated location. The existing office trailers will remain in place until Gas Plant staff have relocated their offices and materials into the new facilities. Once the move has completed, the existing office trailers will be hauled off-site on a semi tractor-trailer heavy duty diesel truck and delivered to an off-site SoCalGas facility or a designated recycling facility. The anticipated schedule and equipment required for removal and delivery has been included in the equipment estimates for the proposed Central Compressor Station.

Activities associated with the guard house relocation will include site preparation, grading, and road widening. The existing guard house will remain in place for additional site security. The materials and equipment required for construction will be delivered on-site and the facility would be constructed within the prepared site. The guard house relocation will be the first construction activity and will commence upon CPCN approval. The estimated schedule and equipment list required for construction of the proposed trailer facilities and guard house relocation is presented in Table 3.7-3 below.

Table 3.7-3 Estimated Construction Equipment List for the Proposed Trailer Facilities and Guard House Relocation

Equipment Type	Office Relocation		Guard House	
	Number of Equipment	Duration	Number of Equipment	Duration
¾-Ton Pickup Truck	2	2 months	2	2 months
10-Ton Hydraulic Crane	0	N/A	1	1 day
Backhoe/Loader	1	1 month	1	2 months
Water Truck (2000 gallons)	1	1 month	1	1 month
Grader	0	N/A	1	1 month
D6 Dozer	1	1 month	1	1 month
Dump Truck (10 yards)	3	1 month	3	1 month
Sheep's Foot Vibrator Compactor (10 yards)	1	1 month	1	1 month
Front End Loader	1	1 month	1	1 month
Drill Rig (Drilling Piers)	0	N/A	1	1 month
Paver/Sealer	1	1 week	1	1 week
Total Material Delivery Truck Loads	75	2 months	100	2 months

SCE Natural Substation and SCE 66 kV Sub-transmission Facilities

SCE anticipates that construction of the proposed SCE Natural Substation and proposed modifications to two SCE 66 kV sub-transmission lines will take approximately 9 -15 months, not including equipment purchasing and ordering. Construction will commence following CPUC approval, final engineering and procurement activities. However, construction of the SCE 66 kV sub-transmission line modifications could take up to 15 months if delayed due to access or inclement weather. The estimated schedule and equipment list required for construction of the proposed SCE Natural Substation is presented in Table 3.7-4. The estimated schedule and equipment list required for construction of the proposed SCE 66 kV Sub-transmission Facilities is presented in Table 3.7-5.

Table 3.7 4 SCE Natural Substation Equipment List and Construction Schedule

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Survey (2 people)	10	2-Survey Trucks	8
Grading (15 people)	90	1-Dozer 2-Loader 1-Scraper 1-Grader 1-Water Truck 2-4X4 Backhoe	4 4 3 3 2 2

Table 3.7 4 SCE Natural Substation Equipment List and Construction Schedule

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
		1-4X4 Tamper 1-Tool Truck 1-Pickup Truck, 4X4	2 2 2
Fencing (4 people)	10	1-Bobcat 1-Flatbed Truck 1-Crewcab Truck	8 2 4
Civil (10 people)	60	1-Excavator 1-Foundation Auger 2-Backhoe 1-Dump truck 1-Skip Loader 1-Water Truck 2-Bobcat Skid Steer 1-Forklift 1-17-Ton Crane 1-Tool Truck	4 6 hours/day for 15 days 3 hours/day for 15 days 3 2 3 3 3 4 2 hours/day for 45 days 3
MEER (4 people)	20	1-Carry-all Truck 1-Stake Truck	3 2
Electrical (10 people)	70	2-Scissor Lifts 2-Manlifts 1-Reach Manlift 1-15-Ton Crane 1-Tool Trailer 2-Crew Trucks	3 3 4 3 hours/day for 35 days 3 2
Wiring (5 people)	25	1-Manlift 1-Tool Trailer	4 3
Transformers (6 people)	30	1-Crane 1-Forklift 2-Crew Trucks 1-Low Bed Truck	6 hours/day for 10 days 6 2 4
Maintenance Crew Equipment Check (2 people)	30	2-Maintenance Trucks	4
Testing (2 people)	80	1-Crew Truck	6
Asphalting (6 people)	15	2-Paving Roller 1-Asphalt Paver 1-Stake Truck 1-Tractor 1-Dump Truck 2-Crew Trucks 1-Asphalt Curb Machine	4 4 4 3 3 2 3
Landscaping (6 people)	15	1-Tractor 1-Dump Truck	6 3

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Survey (1)				**4**	**9**		**9 Miles**
1/2-Ton Pick-up Truck, 4x4	200	Gas	2		9	8	1 Mile/Day
Marshalling Yard (2)				**4**			
1-Ton Crew Cab, 4x4	300	Diesel	1		Duration of Project	2	
30-Ton Crane Truck	300	Diesel	1			2	
10,000 lb Rough Terrain Fork Lift	200	Diesel	1			5	
Truck, Semi, Tractor	350	Diesel	1			1	
R/W Clearing (3)				**5**	**0**		**0 Miles**
1-Ton Crew Cab, 4x4	300	Diesel	1		0	8	0.25 Mile/Day
Road Grader	350	Diesel	1		0	6	
Water Truck	350	Diesel	2		0	8	
Backhoe/Front Loader	350	Diesel	1		0	6	
Track Type Dozer	350	Diesel	1		0	6	
Lowboy Truck/Trailer	500	Diesel	1		0	4	
Roads & Landing Work (4)				**5**	**35**		**10 Miles & 73 Pads**
1-Ton Crew Cab, 4x4	300	Diesel	2		35	2	0.5 Miles/Day & 5 Structure Pads/Day
Road Grader	350	Diesel	1		35	4	
Water Truck	350	Diesel	2		35	8	
Backhoe/Front Loader	350	Diesel	1		35	6	
Drum Type Compactor	250	Diesel	1		35	4	
Track Type Dozer	350	Diesel	1		35	6	
Excavator	300	Diesel	1		18	6	
Lowboy Truck/Trailer	500	Diesel	1		18	2	
Guard Structure Installation (5)				**6**	**6**		**22 Structures**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		6	6	4 Structures/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	1		6	6	
Compressor Trailer	120	Diesel	1		6	6	
Auger Truck	500	Diesel	1		6	6	
Extendable Flat Bed Pole Truck	350	Diesel	1		6	6	
30-Ton Crane Truck	500	Diesel	1		6	8	
80ft. Hydraulic Man-lift/Bucket Truck	350	Diesel	1		6	4	
Remove Existing Wood Poles (6)				**6**	**2**		**12 Poles**
1-Ton Crew Cab, 4x4	300	Diesel	2		2	5	6 Poles/Day

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
10,000 lb. Rough Terrain Forklift	200	Diesel	1		2	4	
30-Ton Crane Truck	300	Diesel	2		2	6	
Compressor Trailer	120	Diesel	2		2	6	
Flat Bed Truck/ Trailer	350	Diesel	1		2	4	
Remove Existing Steel Poles (7)				**8**	**5**		**3 TSPs & 6 LWS Poles**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		5	5	2 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		5	5	
Compressor Trailer	120	Diesel	1		5	5	
80-Ton Rough Terrain Crane	350	Diesel	1		5	6	
Remove Existing Lattice Steel Towers (8)				**6**	**25**		**50 Towers**
1-Ton Crew Cab, 4x4	300	Diesel	2		25	5	2 Towers/Day
30-Ton Crane Truck	300	Diesel	2		25	6	
Compressor Trailer	120	Diesel	2		25	8	
Flat Bed Truck/Trailer	350	Diesel	1		25	8	
10,000 lb Rough Terrain Forklift	200	Diesel	1		25	4	
Remove Existing Foundations (9)				**4**	**17**		**50 Towers**
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	1		17	8	3 Towers/Day
10-cu. yd. Dump Truck	350	Diesel	1		17	4	
Backhoe/Front Loader	350	Diesel	1		17	4	
Compressor Trailer	120	Diesel	1		17	6	
Install Tubular Steel Pole Foundations (10)				**14**	**111**		**73 TSPs**
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4		111	2	0.66 TSPs/Day
30-Ton Crane Truck	300	Diesel	2		111	5	
Backhoe/Front Loader	200	Diesel	2		111	8	
Auger Truck	500	Diesel	2		75	6	
4000 gallon Water Truck	350	Diesel	2		111	4	
10-cu. yd. Dump Truck	350	Diesel	2		111	5	
10-cu. yd. Concrete Mixer Truck	425	Diesel	6		75	5	
Steel Pole Haul (11)				**4**	**25**		**73 TSPs**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	1		25	5	3 Steel Poles/Day
80-Ton Rough Terrain Crane	350	Diesel	1		25	6	

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
40' Flat Bed Truck/ Trailer	350	Diesel	2		25	8	
Steel Pole Assembly (12)				**8**	**37**		**73 TSPs**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		37	5	2 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		37	5	
Compressor Trailer	120	Diesel	1		37	5	
80-Ton Rough Terrain Crane	350	Diesel	1		37	6	
Steel Pole Erection (13)				**8**	**37**		**73 TSPs**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		37	5	2 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		37	5	
Compressor Trailer	120	Diesel	1		37	5	
80-Ton Rough Terrain Crane	350	Diesel	1		37	6	
Install Conductor & OHGW/OPGW (14)				**16**	**38**		**13 Circuit Miles**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		38	8	0.35 miles/day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4		38	8	
Wire Truck/Trailer	350	Diesel	2		26	2	
Dump Truck (Trash)	350	Diesel	1		38	2	
Bucket Truck	350	Diesel	2		38	8	
22-Ton Manitex	350	Diesel	2		38	8	
Splicing Rig	350	Diesel	1		10	2	
Splicing Lab	300	Diesel	1		10	2	
3 Drum Straw line Puller	300	Diesel	1		20	6	
Static Truck/ Tensioner	350	Diesel	1		20	6	
Guard Structure Removal (15)				**6**	**4**		**22 Structures**
3/4-Ton Pick-up Truck, 4x4	300	Diesel	2		4	6	6 Structures/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2		4	6	
Compressor Trailer	120	Diesel	2		4	6	
Extendable Flat Bed Pole Truck	350	Diesel	2		4	6	
30-Ton Crane Truck	500	Diesel	1		4	8	
80ft. Hydraulic Man-lift / Bucket Truck	350	Diesel	1		4	4	
Restoration (16)				**7**	**9**		**9 Miles**
1-Ton Crew Cab, 4x4	300	Diesel	2		9	2	1 Mile/Day

Table 3.7-5 SCE 66 kV Sub-transmission Equipment List and Construction Schedule

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Work-force	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Road Grader	350	Diesel	1		9	6	
Water Truck	350	Diesel	1		9	4	
Backhoe/Front Loader	350	Diesel	1		9	6	
Drum Type Compactor	250	Diesel	1		9	6	
Track Type Dozer	350	Diesel	1		9	4	
Lowboy Truck/Trailer	300	Diesel	1		9	3	

Telecommunications System

The overhead telecommunications cable will be installed by attaching cable to the 66 kV sub-transmission poles in a manner similar to that described above for conductor stringing. A truck with a cable reel will be set up at one end of the section to be pulled, and a truck with a winch will be set up at the other end. Cable will be pulled onto the pole and permanently secured. Fiber strands in the cable from one reel will be spliced to fiber strands in the cable from the next reel to form one continuous path. One reel typically holds 20,000 feet of cable.

Construction of the telecommunication system will include installation of a fiber optic cable from the proposed SCE Natural Substation to the existing Chatsworth Substation; fiber optic cable will be installed from the proposed SCE Natural Substation to the existing Newhall Substation; fiber optic cable will be installed from the proposed SCE Natural Substation to the existing San Fernando and the Los Angeles Department of Water and Power (LADWP) Sylmar Substations.

Digital transport and channel equipment will be installed at the proposed SCE Natural Substation, and the Newhall, Chatsworth, San Fernando, and Sylmar Substations. The equipment will include lightweight transport (SONET) terminals. Digital multiplexers (channel banks) will be installed at the proposed SCE Natural Substation, and the Chatsworth, Newhall, and San Fernando Substations.

Additional Substation Modifications

In order to integrate the proposed 66 kV sub-transmission modification into the grid, SCE will be required to perform certain work at the existing SCE San Fernando, Chatsworth, and Newhall Substations. SCE proposes to upgrade the protective relay systems in each of these substations. All activities associated with upgrading the relays would occur within the existing enclosed relay rooms which are located within the exterior fences of each substation, and would not involve any ground disturbance, material usage or storage, or heavy duty equipment. The workforce has been incorporated into Table 3.7-3 provided above.

SCE will reuse the existing relay rack and the associated switches currently in place. In order to replace the relays, SCE will need to conduct an outage on portions of the existing SCE 66 kV sub-transmission system for protection reasons. However, SCE does not anticipate dropping service to any customers in the area when the line is out of service during the relay replacement activities. During the installation of the new relays, all secondary wiring related to the removed relays will be replaced with new secondary wiring. After the new relays are installed, an SCE Test Crew will test and then energize the new relays and the modified SCE 66 kV sub-transmission lines. The removed relays, secondary wiring and related devices will be palletized and shipped to SCE's Alhambra Combined Facility Building for proper disposal.

3.8 OPERATIONS AND MAINTENANCE PROCEDURES

3.8.1 Central Compressor Station Operations

Operations Personnel and Training

All operating and inspection personnel will complete a specifically designed training for project implementation. The number of employees at the Storage Field will not significantly change based on the installation of the proposed Central Compressor Station.

General System Monitoring and Control

Modern gas facility gas control systems enhance operational efficiencies and provide for greater safety. The control room will serve as the focal point for the Proposed Project.

Central Compressor Facility Monitoring and Control System

Redundant safety systems will be installed at the proposed Central Compressor Station. Gas and fire sensors will monitor all equipment and will automatically shut down the facility if unusual conditions are detected. The facility will be staffed with a day shift only, seven days a week. Operations and maintenance personnel will be on call after the normal working hours to address any abnormal conditions.

A Proprietary Control System will be included with the installation of the VFD compressors. The compressor controls will interface the existing Storage Field SCADA-FIX Intellution control system. Additional equipment within the proposed Central Compressor Station will be monitored and controlled by Allen Bradley programmable logic controllers (PLCs), which will also interface with the FIX Intellution system. Data for process monitoring and predictive maintenance will be archived using a Process Information (PI) data historian.

Control Room

The control room includes personal computers and programmable logic controllers which provide for automation of the control and monitoring functions as well as data collection, recording, and storage. This system will provide continuous monitoring of critical system parameters and will have the capability for shutdown of either individual areas of the entire operation when specific operating conditions are extreme. The system will be connected to the graphic display monitors in the operator's console. The presence of gas in the proposed Central Compressor Station will be monitored.

Equipment Operations

From the control room, the operator will provide valve line-up and sequencing for gas movement between the proposed Central Compressor Station and the line. The operator will regularly inspect the condition and operation of the equipment and facilities prior to and during start up operations.

Facility Inspection and Survey

Annual pressure safety valve (PSV) inspections will be recorded for security and site safety. High pressure pipeline inspections and testing will be recorded every seven years.

Central Compressor Site Inspections

SoCalGas staff will develop a site-specific Compressor Maintenance Plan for the facility. The maintenance plan will include detailed requirements for site inspections, maintenance, and security procedures for the facility.

Scheduled Site Maintenance

Access roads at the proposed Central Compressor Station site are generally paved and may require moderate maintenance of V-ditches and drain boxes. As part of the facility's existing storm water BMPs, V-ditches will be cleared of debris and drain boxes will be cleared to prevent water-related issues. Vegetation around the site will be cleared and managed to maintain access.

3.8.2 SCE Natural Substation and SCE Electric Sub-transmission Line

For service continuity, routine maintenance and emergency repair will be performed at the proposed SCE Natural Substation. The proposed SCE Natural Substation will be unstaffed, and electrical equipment within the proposed SCE Natural Substation will be remotely monitored and controlled by an automated system from SCE's Regional Control Center. SCE personnel will perform routine site visits for electrical switching and maintenance purposes. Routine maintenance will include equipment testing, equipment monitoring, and repair. Routine site visits to the proposed SCE Natural Substation are typically performed three to four times per month.

The modified SCE 66 kV sub-transmission lines will be maintained in a manner consistent with CPUC GO 95 and CPUC GO 165. The sub-transmission lines may occasionally require emergency repairs which will be conducted by SCE personnel. In addition, SCE will (Leanne/Telecom insert basic language saying SCE will maintain telecom lines)

3.9 SUMMARY OF DESIGN, CONSTRUCTION, AND OPERATIONS COMPLIANCE MEASURES

This section lists several main elements of the Proposed Project Compliance Plan, and lists specific design features, construction methods, and operation procedures that will be implemented specifically for the Proposed Project. These applicant proposed measures (APMs) are intended to avoid and/or minimize potential safety risks and environmental impacts. These measures are considered part of the Project Description. These measures are referenced in various impact assessments in Chapter 4.0 *Environmental Assessment* and are summarized below.

The following plans, procedures, and BMPs will be developed as part of the comprehensive compliance plan for construction and operations:

- Emergency Response Plan (Construction and Operation)
- Site Security Plan (Construction and Operation)
- Hazardous Materials Plan (Construction and Operation)
- Grading and Drainage Plan (Construction)
- Erosion and Sediment Control (Construction)
- Management of Hydrostatic Test Water (Construction)
- Storm Water Permits (Construction and Operation)

Traffic Control Plan

A Traffic Control Plan will be developed to minimize short-term construction-related impacts on local traffic, and potential traffic safety hazards. The Plan will include measures such as installation of temporary warning signs at strategic locations near the construction site access location. The signs would be removed after construction-related activities are completed. The Plan will be developed in accordance with the WATCH Manual and could include the following measures:

- Coordination with the city of Los Angeles, the county of Los Angeles, or the city of Santa Clarita on any temporary land or road closures, if needed;
- Installation of traffic control devices as specified in the WATCH Manual;
- Provide temporary alternate routes, as necessary, to route local traffic around construction zones;
- Consult with emergency service providers and develop an Emergency Access Plan for emergency vehicle access in and adjacent to the construction zone.

Construction Staging and Designated Work Zones

Prior to ground-disturbing activities, work zones will be clearly staked and flagged. Construction work areas will be identified to ensure that:

- Construction activities, equipment, and associated activities are confined to designated work zones, and
- Areas supporting sensitive resources are avoided.

Seismic-Resistant Design Measures

The Proposed Project will be designed in accordance with CPUC General Orders and to meet applicable seismic safety standards of the California Building Code. Specific design measures may include, but are not limited to, special foundation design, and additional bracing and support of upright facilities. Project facilities and foundations will be designed to withstand changes in soil density. The proposed SCE Natural Substation would be designed consistent with the IEEE 693, Recommended Practices for

Seismic Design of Substations and the modified sub-transmission lines would be designed consistent with CPUC GO 95 to withstand seismic loading.

Additional information related to seismic design is provided in Section 4.6 Geology, Soils, and Seismicity.

Noise Control Plan

Construction will comply with applicable City of Los Angeles, County of Los Angeles, and City of Santa Clarita (local) noise regulations. Construction will typically occur during daytime hours, weekdays and some Saturdays. Specific noise control measures are discussed in Section 4.11 Noise.

Hazardous Materials Use and Storage Measures

Construction and operation of the Proposed Project will include the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials will be stored, handled, and used in accordance with the applicable regulations. For all hazardous materials in use at the construction site, Material Safety Data Sheets (MSDS) will be available for routine or emergency use.

For Proposed Project activities occurring at the Storage Field site and electrical substations, the existing site-specific HMBPs, SPCC Plans and Storm Water Pollution Prevention Plans (SWPPPs) address hazardous materials and waste storage, handling and emergency procedures. For other Proposed Project locations, Worker Environmental Awareness Program (WEAP) training, standard SCE operating procedures and a site-specific SWPPP, implemented by SoCalGas, will control hazardous materials storage and use and specify protective measures, notifications, and cleanup requirements for any accidental spills or other releases of hazardous materials that could occur.

Any hazardous materials planned for use or storage at the Storage Field during construction of the proposed Central Compressor Station must be pre-approved by designated Safety Staff. Approval of any hazardous material will be determined only after full review of the MSDS for the proposed material. The storage location will be determined based on the SWPPP and facility policy. All other materials will be stored within the facility’s hazardous material and hazardous waste storage area.

Fire Management Measures

The Proponent recognizes the potential for increased fire risk during summer construction activities and will develop fire management measures as part of their Construction Safety and Emergency Response Plan for use during construction and operation. The Plan will include notification procedures and emergency fire precautions, such as the following:

- All internal combustion engines, stationary and mobile, shall be equipped with spark arresters, meeting applicable regulatory standards;
- “No Smoking” signs and fire rules shall be posted on the project bulletin board at all contractor field offices and areas visible to employees during fire season;
- Equipment staging areas shall be cleared of all extraneous flammable materials;
- Installation of fire extinguishers at the proposed Central Compressor Station; and
- Employee training on use of extinguishers and communication with local fire departments.

Standard protocols that could be implemented during the Proposed Project would occur when the National Weather Service issues a Red Flag Warning. These protocol checks include measures to address smoking and fire rules, storage and parking areas, use of gasoline-powered tools, use of spark arresters on construction equipment, road closures, use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements. Trained fire suppression personnel and fire suppression equipment would be established at key locations, and the personnel and equipment would be capable of responding to a fire within 15 minutes notification. Portable communication devices (i.e. radio or mobile telephones) would be available to construction personnel. In addition, SCE participates with the California Department of Forestry and Fire Protection, California Office of Emergency Services, US Forest Service and various city and county fire agencies in the Red Flag Fire Prevention Program and complies with California Public Resources Code Sections 4292 and 4293 related to vegetation management in transmission line corridors.

Cleanup and Post-Construction Restoration Measures

During construction, water trucks may be used to minimize the quantity of airborne dust created by construction activities. Any damage to existing roads as a result of construction will be repaired once construction is complete in accordance with local agency requirements.

All areas that are temporarily disturbed by construction of the electrical components of the Proposed Project (including the marshalling yard and conductor pull sites) will be restored as close to preconstruction conditions as possible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project.

In addition, all construction materials and debris will be removed from construction areas and recycled or properly disposed of off-site. SCE will conduct a final inspection to ensure that cleanup activities are successfully completed.

Erosion and Sediment Control and Pollution Prevention During Construction

Erosion and sediment control measures are implemented during construction activities to help mitigate the amounts of soil that are displaced and transported either by storm water, wind, or other natural factor to other areas.

The following standard erosion and sediment control measures and practices will be used during and after construction to control accelerated soil erosion and sedimentation:

- Minimize site disturbance
- Perform initial cleanup.

These measures are described below and are routinely implemented in the construction industry. They have been successful for projects involving surface and subsurface disturbances similar to those proposed in connection with the Proposed Project. Section 4.8, Hydrology and Water Quality, provides additional measures related to construction staging and work zones.

Minimize Site Disturbance

The most basic way to avoid erosion is to minimize site disturbance. To minimize site disturbance, the construction contractor will be directed to:

- Remove only the vegetation that is absolutely necessary to remove; trim or mow instead of grub where feasible.
- Avoid off-road vehicle use outside the work zone;
- Avoid excessive trips along the ROW or access or public roads; and
- Instruct all personnel on storm water pollution prevention concepts to ensure that all are conscious of how their actions affect the potential for erosion and sedimentation.

Perform Initial Cleanup

The construction contractor will be directed to perform initial site cleanup immediately following construction activities. To help stabilize the site, initial site cleanup will be conducted including removal of all construction debris.

Waste Management

Construction of the Proposed Project will result in the generation of various non-hazardous waste materials, including wood, soil, vegetation, and sanitation waste (portable toilets). These materials will either be re-used at the construction site (e.g., clean soil used for backfill) or disposed at an appropriately licensed off-site facility.

Construction activities will generate utility poles and other treated wood waste. This waste will either be reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, or be disposed of in the lined portion of a Regional Water Quality Control Board (RWQCB)-certified municipal landfill.

Soil generated during excavation and grading activities that is or suspected of being contaminated with oil or other hazardous materials, or materials resulting from spill cleanups, will be characterized and disposed off-site at an appropriately licensed waste facility. There is no known contaminated soil located at any of the Proposed Project construction locations.

All hazardous and non-hazardous wastes generated during operation of the Proposed Project (e.g., waste oil and gas condensates from the compressor station) will be classified and managed in accordance with Federal and State regulations and site-specific permits.

Geotechnical Studies

A pre-engineering geotechnical study has been completed for the proposed Central Compressor Station site. The pre-engineering geotechnical study was conducted to evaluate the depth to the water table, evidence of faulting, liquefaction potential, physical properties of subsurface soil, soil resistivity, slope stability, and the presence of hazardous materials. A pre-engineering geotechnical study will be conducted for the proposed SCE Natural Substation prior to construction.

Environmental Surveys

As part of the PEA process, detailed environmental surveys have been conducted to identify sensitive biological and cultural resources in the vicinity of the Proposed Project, including the 66 kV sub-transmission alignments. Once final siting is completed, surveys will also be conducted of wire stringing locations, access roads, and marshalling yards. The information gathered from these surveys have been and will continue to be used to determine project planning and design in order to avoid sensitive resources, and identify APMs that would minimize the impact to sensitive resources from project-related activities. In addition, the results of these surveys were used and will continue to be used to determine the extent to which environmental specialist construction monitors will be required.

The following focused biological resource surveys were conducted during Spring 2009, and some surveys will occur annually until construction. More information on these sensitive species can be found in Section 4.4, Biological Resources.

- Focused plant surveys - Focused plant surveys were conducted in the spring following a winter season of adequate rainfall throughout the region for the special status plant species with potential to occur within the vicinity of the Proposed Project.

Worker Environmental Awareness Training

Prior to construction, a WEAP will be developed based on the final engineering design, the results of preconstruction surveys, and a list of mitigation measures, if any, developed by the CPUC to mitigate significant environmental effects of the Proposed Project. A presentation will be prepared by the Proponent and shown to all site workers prior to their start of work. A record of all trained personnel will be kept with the construction foreman.

In addition to the instruction for compliance with any additional site-specific biological or cultural resource protective measures and project mitigation measures that are developed after the preconstruction surveys, all construction personnel will receive the following:

- A list of phone numbers of key personnel associated with the Proposed Project (archeologist, biologist, environmental compliance coordinator, and regional spill response coordinator);
- Instruction on the South County Air Pollution Control District Fugitive Dust and Ozone Precursor Control Measures, and Portable Engine Operating Parameters;
- Direction that site vehicles must be properly muffled;
- Instruction on what typical cultural resources look like, and if discovered during construction, to suspend work in the vicinity of any find and contact the site foreman and archeologist or environmental compliance coordinator;
- Instruction on how to work near the Environmentally Sensitive Area that will be delineated by the Project Archeologist and Biologist;

- Instruction on individual responsibilities under the Clean Water Act, the project SWPPP, site-specific BMPs, hazardous materials and waste management requirements, and the location of MSDS for the project ;

- Instructions to notify the foreman and regional spill response coordinator in case of hazardous materials spills and leaks from equipment, or upon the discovery of soil or groundwater contamination;

- A copy of the truck routes to be used for material delivery; and

- Instruction that noncompliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Proposed Project.

Construction Equipment and Personnel

Construction of the Proposed Project components including the proposed Central Compressor Station, the proposed SCE Natural Substation, proposed 66 kV sub-transmission system modification, and proposed substation modifications could occur concurrently. Construction related-activities are estimated to occur for 22 months.

Construction of the proposed Central Compressor Station will require a peak of 150 workers per day. There is insufficient parking for 150 works per day; therefore, workers will have to be brought in by commuter bus and dropped off at the construction site location.

Construction of the proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission line modifications, and proposed substation modifications will be performed by either SCE construction crews or contractors, depending on the availability of SCE construction personnel at the time of construction. If SCE transmission and telecommunications construction crews are used they will likely be based at one of SCE’s local facilities. Contractor construction personnel will be managed by SCE construction management personnel.

SCE anticipates a total of approximately 42 construction personnel working on any given day. SCE anticipates that crews will work concurrently whenever possible; however, the estimated deployment and number of crew members will be dependent upon City permitting, material availability, and construction scheduling. For example, electrical equipment (such as substation MEER, wiring, and transformer) installation may occur while sub-transmission line construction proceeds. The proposed SCE Natural Substation electrical equipment installation activities may require approximately 32 personnel while the sub-transmission construction activities may require 10 personnel.

In general, construction activities will occur in accordance with accepted construction industry standards. Construction activities generally will be scheduled during daylight hours (7:00 am to 5:00 pm), Monday through Friday. If different hours or days are necessary, SCE will obtain variances from local noise ordinances, as necessary, from the jurisdiction within which the work will take place.

3.10 REQUIRED PERMITS AND PLANS

Required permits and plans for the Proposed Project are represented in the Table 3.10-1 below.

Table 3.10-1 Permit Requirements for the Proposed Central Compressor Station/Storage Field

Other Project Approvals	Issuing Agency	Purpose/ Covered Activity
1. Federal		
Clean Water Act Section 404/Rivers and Harbors Act Section 10: Nationwide Permit (NWP)	United States Army Corps of Engineers	Utility line activities in waters of the United States.
2. State		
National Pollutant Discharge Elimination System (NPDES) General Permit for Discharge of Construction Related Storm Water	State Water Resources Control Board	Management of storm water during construction.
Consultation	California Department of Fish and Game (CDFG)	Incidental Take Permit
851 Approval	California Public Utilities Commission	Prior to granting SCE an electrical easement to construct and operate the proposed SCE Natural Substation, SoCalGas will need CPUC approval with Section 851 of the Public Utilities Code.
3. Local		
Consultation	Significant Ecological Area Technical Advisory Committee (SEATAC)	Los Angeles County Proposed General Plan Update includes Significant Ecological Area (SEA) boundary changes affecting Proposed Project area (SCE is exempt from such local plan, per CPUC General Order 131-D_
Traffic Control Plan/Detour	California Department of Transportation (Caltrans) District 7, City of Santa Clarita, Los Angeles County, LA City	Traffic management for lane closures during project construction.
Building Permit	Los Angeles County	Proposed Central Compressor Station site; proposed office trailer relocation
Building Permit	City of Los Angeles – Los Angeles Municipal Code Section 91.106	Proposed guard house relocation

Table 3.10-1 Permit Requirements for the Proposed Central Compressor Station/Storage Field		
Other Project Approvals	**Issuing Agency**	**Purpose/ Covered Activity**
Engineered Grading Permit Inclusive of the proposed Central Compressor Station and the proposed SCE Natural Substation	Los Angeles County Department of Public Works	An excavation that (1) is more than 2 feet (610 mm) in depth or (2) creates a cut slope greater than 5 feet (1524 mm) in height and steeper than 1 unit vertical in 2 units horizontal (50 percent slope) and exceeds 50 cubic yards (38.3 cubic meters [m^3]). The proposed Central Compressor Station and the proposed SCE Natural Substation would need separate engineered grading permits.
Trench/Excavation Permit	California Occupational Health and Safety Administration (Cal-OSHA)	Prior to construction, SCE and SoCalGas workers are required to have a trenching/excavation permit
Oak Tree Permit	City of Santa Clarita and Los Angeles County	Agency notification and authorization if impacts to oaks of a certain size (6-inch diameter at breast height [DBH] – City; 8-inch DBH - County) are anticipated, whether through removal of an entire tree, trimming of branches, or conducting construction activities within the drip lines of the trees.

4.0 Environmental Assessment

The following sections in Chapter 4 evaluate the potential environmental impacts from the Proposed Project. The analysis of each resource category begins with an examination of the existing physical setting (baseline conditions as determined pursuant to Section 15125(a) of the CEQA Guidelines) that may be affected by the Proposed Project as well as the regulatory framework that applies to the Proposed Project area. A completed CEQA Checklist is provided in Appendix C, based on the conclusions of this PEA. The effects of the Proposed Project are defined as changes to the environmental setting that are attributable to project construction and operation.

The Proposed Project does not involve changes to existing natural gas transmission pipelines used to transport natural gas to and from the Storage Field, nor any new pipelines or piping, with the exception for minor piping modifications required to connect the proposed Central Compressor Station to the Storage Field. Similarly, as described in Chapter 3.0, Project Description, the proposed Project does not change any aspect of gas storage within the Facility, except to allow a higher injection rate and therefore more rapid field cycling. Therefore, the Storage Field itself will not produce environmental impacts requiring evaluation.

This assessment covers all components of the proposed Project. However, as discussed in Chapter 3.0, some construction and operational elements of the proposed Project are minor activities. For example, installation of upgraded relay systems and equipment at the existing SCE Newhall, Chatsworth, and San Fernando Substations will not result in any structural changes or other permanent constructions within these facilities. Similarly, some construction support functions such as material storage and staging represent minor activities with minimal potential for resource impact. Assessment of these and similar minor project elements was performed, but not specifically discussed in the resource sections. These elements are specifically discussed in cases where a resource may be impacted.

Significance criteria are identified for each environmental resource area. The significance criteria serve as a benchmark for determining if a project would result in a significant adverse environmental impact when evaluated against the baseline. According to the CEQA Guidelines Section 15382, a significant effect on the environment means “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project”. If significant impacts are identified, feasible Mitigation Measures are developed and proposed to eliminate or reduce the level of the impacts and focus on the protection of sensitive resources.

Compliance with laws, regulations, ordinances, best practices and standards designed to reduce impacts are not considered mitigation measures under CEQA. Where such rules and practices are applicable to specific resource areas affected by the Proposed Project, SoCalGas and SCE have agreed and SoCalGas proposes to incorporate Applicant Proposed Measures (APMs) as project design features that will be implemented to maintain existing conditions and minimize environmental impacts. These APM’s will ensure that the Proposed Project conforms to the policies and best practices of SoCalGas and SCE, and compliance with applicable environmental laws.

4.1 Aesthetics

This section describes the existing aesthetic resources in the area of the Proposed Project. The potential impacts are also discussed.

Project components that do not involve modifications/changes that would be visible to the public/residential viewers were not assessed. These components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations.

4.1.1 Existing Aesthetics Setting

4.1.1.1 Existing Visual Character Surrounding the Proposed Project Area

As discussed in Chapter 3.0, Project Description, the Proposed Project includes the removal of existing gas-driven turbines, including the following components: construction of a proposed Central Compressor Station and installation of three new VFD motors; the proposed relocation of existing on-site office trailers and guard house; and construction of the proposed plant power line (PPL), within the Storage Field property. In addition, the Proposed Project includes modifying two existing SCE 66 kV sub-transmission lines, constructing a proposed SCE Natural Substation, and upgrading three off-site existing SCE substations to accommodate the Proposed Project.

Project components that will be led by SoCalGas include the proposed Central Compressor Station, the proposed PPL, and the proposed relocation of office trailers; these components are located within SoCalGas's privately owned land (the Storage Field) and entirely within the unincorporated Los Angeles County lands. The proposed guard house relocation is located within the Storage Field property, within the city of Los Angeles. Project components that will be constructed by SCE include the proposed modification of two existing SCE 66 kV sub-transmission lines, located primarily within unincorporated Los Angeles County lands, with small portions within Newhall (a community within the city of Santa Clarita), and Sylmar (a community within the city of Los Angeles); the proposed on-site SCE Natural Substation, located in the county of Los Angeles; and modifications to the San Fernando Substation, located in the city of Los Angeles. The northernmost point of O'Melveny Park is the only public vantage point from which new facilities constructed within the Storage Field will be visible. The proposed SCE 66 kV sub-transmission modification will be visible from Santa Clarita Woodlands Park (including Ed Davis Park in Townley Canyon, and East & Rice Canyon), Michael D. Antonovich Open Space, and O'Melveny Park. The proposed modification at the SCE San Fernando Substation will be visible from public locations, including Brand Park and Mission San Fernando Rey de España, a national historic landmark. Land uses within the area of the Proposed Project consist of natural gas storage, residential, agricultural, recreational, open space, and waste storage. The overall region is characterized by canyons, hills, and mountain ranges, which provide an open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita, 2008).

The Santa Susana Mountains and San Gabriel Mountains are the two dominant features in the vicinity of the Proposed Project. These two ranges are separated by the I-5 Freeway in the Newhall Pass area, with the Santa Susana Mountains located to the west and the San Gabriel Mountains to the east of the I-5. The Santa Susana Mountains are an east-west running ("transverse") range with portions in both Ventura and Los Angeles Counties. Oat Mountain is the highest point of elevation at 3,747 feet. The San

Gabriel Mountains are also a transverse range and divide the Greater Los Angeles area from the Mojave Desert to the north.

4.1.1.2 Existing Light and Glare

Existing sources of nighttime light in the area are primarily from the I-5 Freeway, and from residential, commercial, and business areas within the cities of Santa Clarita and Los Angeles.

4.1.1.3 Sensitive Viewer Groups

Sensitive viewer groups are generally persons located in public areas such as recreational areas (i.e., hiking trails, bicycle trails), parks, historical/cultural sites, vehicles on scenic highways or routes, and in non-public residential properties. Several sensitive public viewer groups include users of Santa Clarita Woodlands Park (including Ed Davis Park in Towsley Canyon, and East & Rice Canyon), the Michael D. Antonovich (MDA) Open Space Preserve, O'Melveny Park, visitors to the Mission San Fernando Rey de España, existing residents along Wiley Canyon Road in Newhall, existing residents at The Old Road Mobile Home Park, and existing residents north of Sesnon Boulevard and east of Limekiln Canyon in Porter Ranch (a community within the city of Los Angeles).

4.1.1.4 Applicable Local Plans/Policies

Note, Article XII, section 8, of the California Constitution states, "[a] city, county, or other public body may not regulate matters over which the Legislature grants regulatory power to the [Public Utilities] Commission." The Public Utilities Code authorizes the CPUC to "do all things, whether specifically designated in this act or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction." Cal. Pub. Util. Code §701. Other Public Utilities Code provisions generally authorize the CPUC to modify facilities, to secure adequate service or facilities, and to operate so as to promote health and safety. Thus, under the California Constitution and Public Utilities Code, the CPUC has broad authority to preempt local regulation of public utilities, particularly when a local government attempts to unduly burden a public utility use or operations. Cities and Counties cannot impose regulations that place significant burdens on utility operations. In addition, in the context of electric utility projects, CPUC G.O. 131-D, Section XIV B States that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consult local regulations and consult with local agencies, but the county and city regulations regarding aesthetics are not anticipated to apply to the Proposed Project.

County of Los Angeles General Plan

The original Los Angeles County General Plan was adopted in 1980 and has governed land use in unincorporated Los Angeles County for nearly 30 years (Los Angeles County 2008). Proposed revisions to the General Plan were released in 2008 and are currently pending adoption.

The following policy from the Conservation, Open Space and Recreation Element of the existing adopted General Plan is applicable to portions of the route of the proposed SCE 66 kV sub-transmission modification, that traverse unincorporated Los Angeles County areas:

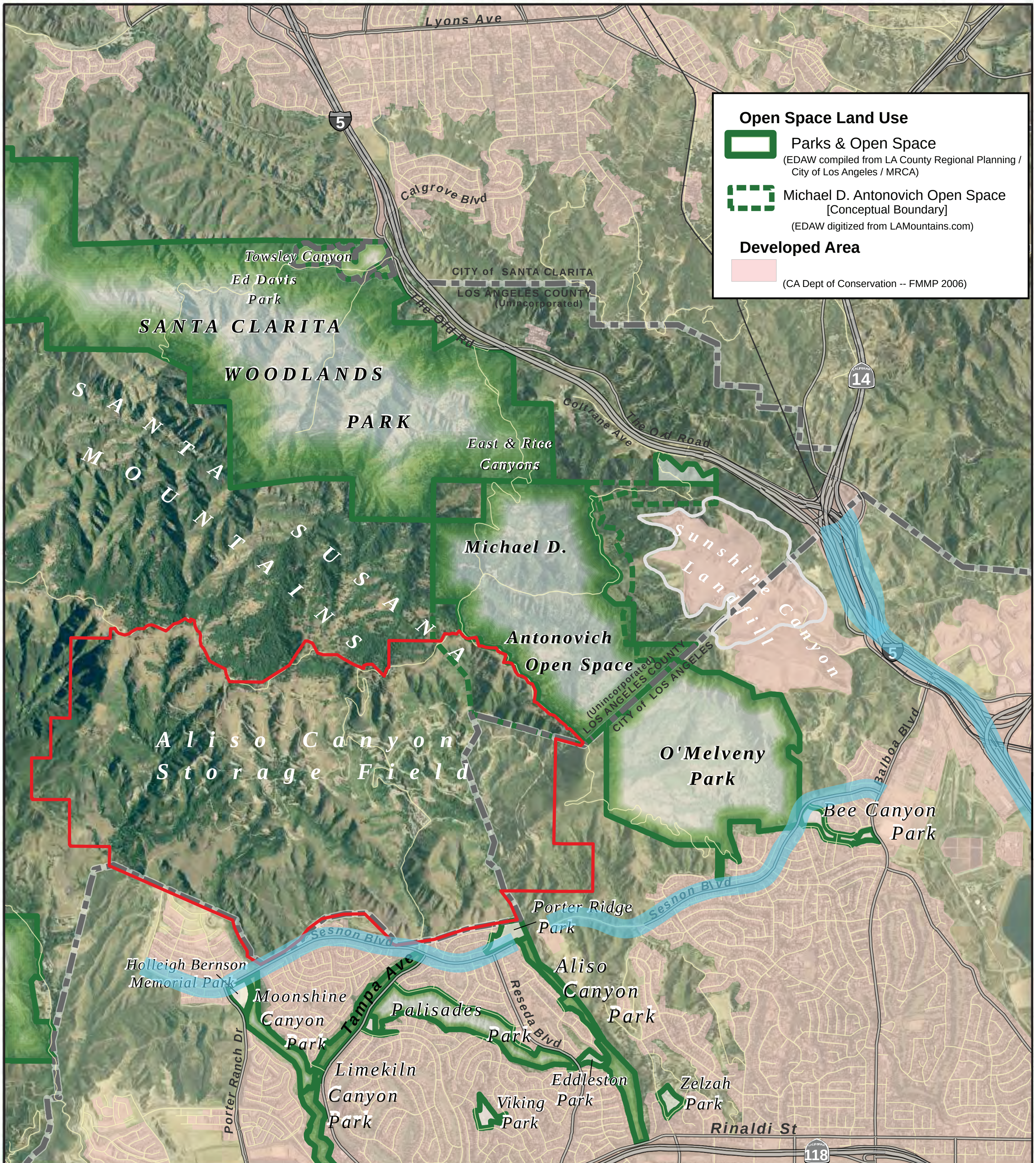
Policy 16: Protect the visual quality of scenic areas including ridgelines and scenic views from public roads, trails and key vantage points.

City of Los Angeles General Plan

The city of Los Angeles General Plan was most recently re-adopted in 2001. Chapter 6, Open Space and Conservation of the Citywide General Plan Framework Element, discusses the benefits of natural open space. The following policy would be applicable to portions of the Proposed Project route that traverse the city of Los Angeles lands:

Policy 6.1.2 (c): Coordinate City operation and development policies for the protection and conservation of open space resources by preserving natural view sheds, whenever possible, in hillside and coastal areas.

The Transportation Element of the City's General Plan designates Sesnon Boulevard and the I-5 Freeway (from the I-210 north to the City/County Line) as scenic highways. Figure 4.1-1 shows locally designated scenic highways in the vicinity of the project site.



Map Location

Legend

City of Los Angeles Designated Scenic Highways

Aliso Canyon Storage Field

Transportation Network (NavTeq 2006 / EDAW updates 2009)

Highways and Main Roads

Streets and Fire Roads

1 inch = 4,500 feet

0 4,000 8,000 Feet

N W E S

Aliso Canyon PEA

Figure 4.1-1
Locally Designated Scenic Highways

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

The following policies from the Transportation Element would be applicable to portions of the route of the proposed SCE 66 kV sub-transmission modification, which traverse, or are visible from, the city of Los Angeles lands:

> Policy 11.2: Provide for protection and enhancement of views of scenic resources along or visible from designated scenic highways through implementation of guidelines set forth in this Transportation Element.
>
> Policy 11.3: Consider aesthetics and scenic preservation in the design and maintenance of designated scenic highways and of those scenic byways designated in Community Plans.

City of Santa Clarita General Plan

The General Plan, adopted on June 26, 1991, provides the framework for development in Santa Clarita. The Community Design Element of the General Plan discusses the visually and aesthetically important resources to the city of Santa Clarita. Specifically, significant ridgelines are identified as features that require protection. The Community Design Element also discusses the many transportation corridors through the Santa Clarita Valley as also serving as view corridors, in which the I-5 Freeway is identified as offering scenic vistas. The following policies are applicable to the portions of the Proposed Project route that traverse the city of Santa Clarita:

> Policy 5.1: Retain designated landforms, such as ridgelines, natural drainage ways, streams, rivers, valleys, and significant vegetation, especially where these features contribute to the overall community identity.
>
> Policy 5.3: Where possible, incorporate attractive natural amenities, such as rock outcroppings, vegetation, streams, and drainage areas, into the development of future projects to protect the environment and provide landscape opportunities, visual interest, scale and/or recreational opportunities.

4.1.1.5 Methodology Related to Aesthetics

View point locations providing views of the proposed SCE 66 kV sub-transmission modification, the Aliso Canyon Gas Storage Field, and San Fernando Substation were selected as representative views associated with sensitive viewer groups or within protected viewshed areas. A total of ten view point locations were used to provide a variety of perspectives and angles to assess the visual effects of the Proposed Project. Viewpoint locations were chosen to best demonstrate the proposed change in views from the current condition at view locations of sensitive viewers, including sensitive viewers within the surrounding residential, open space and recreational areas, and historical/cultural sites. In order to complete this analysis, photographic visual simulations were prepared to depict the conditions before and after the Proposed Project for five of the ten view point locations. Simulations were not provided for views in which the Proposed Project components were more than two-thirds of a mile distance from the view point location. This is because at this distance the project components form such a small part of the overall view that the incremental increase in height would be negligible. A simulation is not provided for the proposed modifications at the San Fernando Substation because the final number, configuration, and heights of the new TSPs required at this location is unknown at the time of the preparation of this section.

The photographic visual simulations were developed from a combination of color photographs and computer-generated modeling derived from Proposed Project features to depict the approximate height, mass, and location of proposed changes onto a photograph of the existing Proposed Project site. Visual simulations of the proposed TSPs are based on the Typical TSP Design, as shown previously on Figure 3.5-3. The intent of the visual simulations is to show potential changes to the existing visual character from the selected view point locations.

The TSPs proposed along Wiley Canyon Road are proposed to be 85 feet high. The visual simulation of TSPs along Wiley Canyon Road (Figure 4.1-4) shows the TSPs at this proposed 85-foot height. The existing LSTs that will be replaced along Wiley Canyon Road are approximately 70 feet high.

The exact heights of existing LSTs other than along Wiley Canyon Road were unknown at the time of the visual simulation process. For the purpose of presenting a worst-case scenario in the difference in heights between these existing LSTs and their proposed replacement TSPs, a conservative approach was taken in the presentation of the visual simulations. To present a worst-case scenario, heights of all existing LSTs, other than along Wiley Canyon Road, were assumed to be 100 feet tall. While the proposed TSPs could range in height from 55 feet to 150 feet, the heights of all proposed TSPs, other than those on Wiley Canyon Road, were simulated to be 50% taller than existing structures, representing a height of 150 feet.

4.1.2 Significance Criteria

The significance criteria for assessing the impacts to aesthetics derive from the CEQA Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Have a substantial adverse effect on a scenic vista,
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway,
- Substantially degrade the existing visual character or quality of the site and its surroundings, or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The county of Los Angeles and city of Los Angeles do not have any significance criteria other than the CEQA criteria shown above.

4.1.3 Applicant Proposed Measures

The following APM will be implemented as part of the Proposed Project design:

APM-A-01: Should construction activity be required to occur at night; where feasible, SCE will use lighting to protect the safety of the construction workers, but orient the lights to minimize their effect on any nearby sensitive receptors.

4.1.4 Environmental Impacts

The potential impact to aesthetics from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria. For the purpose of presenting potential aesthetic resource impacts, CEQA criteria were evaluated and are discussed separately for construction and operation.

Construction Impacts

Would the Proposed Project have a substantial adverse effect on a scenic vista?

Would the Proposed Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

Would the Proposed Project substantially degrade the existing visual character or quality of the site and its surroundings?

The three questions above are answered in the following response: Construction-related activities associated with the Proposed Project are anticipated to begin in June, 2010. Construction will begin following receipt of the CPCN modification, granted by the CPUC. Once the modified CPCN has been granted by the CPUC, construction of the proposed Central Compressor Station, the proposed SCE Natural Substation, the proposed PPL, proposed relocation of office trailers and guard house, and proposed modifications to SCE's two 66 kV sub-transmission lines will occur on concurrent schedules. Construction of the proposed Central Compressor Station is anticipated to last 22 months. Construction of the proposed SCE Natural Substation and sub-transmission facilities is anticipated to last 9 months to 15 months, not including equipment purchasing and ordering.

During construction, sensitive viewers could see activities such as removal of vegetation, construction of buildings, pole removal, grading and excavation of pole footings, pole replacement, rehabilitation of dirt roads, as well as the use of various types of construction-related heavy equipment, as described in Chapter 3.0. These construction-related visual impacts could be considered adverse. However, because the impacts would be temporary rather than permanent, impacts to scenic vistas, scenic resources, and to the visual character and quality of the site during construction would be considered less than significant. Additional detailed discussion and analysis for specific aesthetic-related impacts are included later in this section.

Would the Proposed Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Under normal circumstances, construction of the Proposed Project will occur during daylight hours. However, there is a possibility that construction will occur at night, and temporary artificial illumination will be required. SCE will implement APM-A-01 to orient the lights in a manner to minimize their effect, where feasible, on any nearby sensitive receptors. With implementation of the above identified APM, light and glare impacts related to construction would be considered less than significant.

Operation Impacts

Would the Proposed Project have a substantial adverse effect on a scenic vista?

The General Plans of the cities of Los Angeles and Santa Clarita and the county of Los Angeles do not identify any designated scenic vistas. It can be concluded from the language in the General Plans, however, that a number of scenic vistas occur in the vicinity of the Proposed Project due to the presence of large open space areas and ridgelines. Areas in the vicinity of the Proposed Project site that could be considered scenic could include open space areas where there are existing electrical towers that will be replaced with taller structures of a different configuration, or where the proposed SCE Natural Substation will be constructed. Figure 4.1-2 provides a map of City-designated significant ridgelines in southern Santa Clarita, and depicts the alignment of the proposed SCE 66 kV sub-transmission modification. Figure 4.1-3 presents the locations from which photographs and/or visual simulations were provided. As described later in this section and shown in Figures 4.1-4 through 4.1-7 and 4.1-9, the replacement of existing electrical towers and addition of the SCE Natural Substation would result in only minor changes to existing views. Thus, the change would not be substantial and impacts related to scenic vistas associated with LST replacement along the alignment of the proposed SCE 66 kV sub-transmission modification and addition of the SCE Natural Substation would be less than significant.

The existing Storage Field is predominately undeveloped and primarily used for industrial natural gas storage activities. Although there are scenic areas on the site, views of the Storage Field would not be considered scenic due to the existing disturbed viewshed including the Storage Plant and industrial activities, as described later in this section and shown in Figure 4.1-10. In addition, the area of the proposed San Fernando Substation would not be considered scenic because it has already been developed, as described later in this section and shown in Figure 4.1-12. Therefore, impacts of these project components related to scenic vistas would be less than significant.

Would the Proposed Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

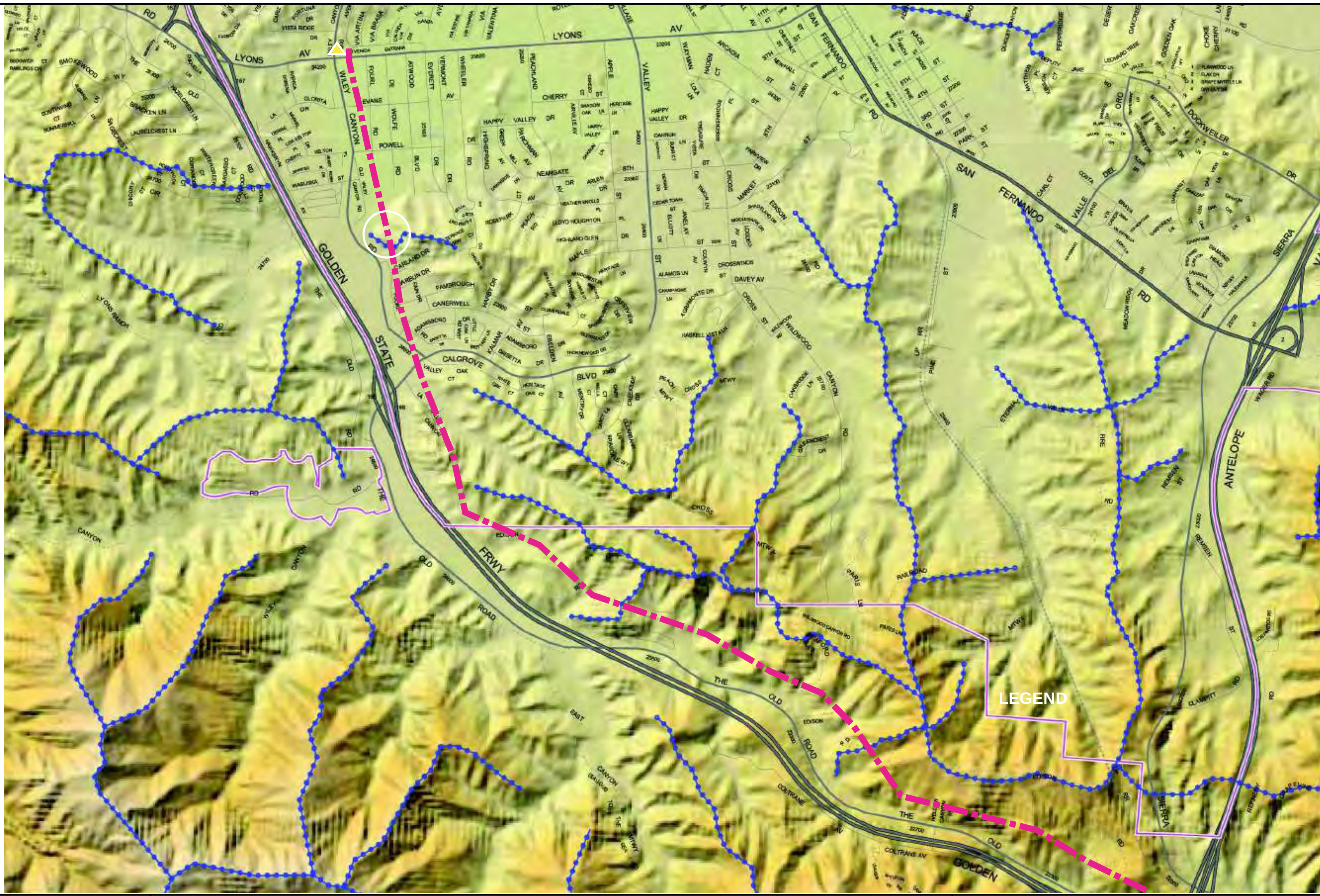
The Proposed Project is not located within an officially designated State Scenic Highway, as mapped by Caltrans. Furthermore, the only publicly visible Proposed Project component from the city of Santa Clarita is the alignment of the proposed SCE 66 kV sub-transmission modification located along the I-5 Freeway. Implementation of the Proposed Project would include replacing existing LSTs along the alignment with new upgraded TSPs and, as described above, would not substantially alter the existing condition, nor would it damage scenic resources considered significant by the city of Santa Clarita, such as significant ridgelines or scenic views. Therefore, implementation of the Proposed Project would not damage scenic resources and impacts would be considered less than significant.

As mentioned previously, the Proposed Project is located primarily within unincorporated Los Angeles County lands, with small portions within Newhall (a community within the city of Santa Clarita), Chatsworth and Sylmar (communities within the city of Los Angeles). The General Plans of these jurisdictions list a number of scenic resources that would be in proximity to the Proposed Project.

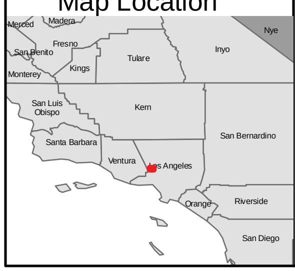
As mentioned previously, the county of Los Angeles General Plan lists ridgelines and scenic views from public roads, trails and key vantage points as scenic resources. However, as described later in this section and shown in Figures 4.1-4 through 4.1-7 and 4.1-9, the replacement of existing electrical towers and installation of the proposed SCE Natural Substation would result in only minor changes to existing views, and therefore would not substantially damage ridgelines or scenic views from roads, trails, and scenic vantage points. Impacts would be considered less than significant.

The city of Los Angeles General Plan lists natural view sheds in hillside and coastal areas as requiring protection. In addition, the Transportation Element of the City's General Plan designates Sesnon Boulevard and I-5 from I-210 north to the County Line as scenic highways. As discussed later in this section and shown on Figure 4.1-11, there is only one view along Sesnon Boulevard (View 9) where the alignment of the proposed SCE 66 kV sub-transmission modification is visible. The proposed SCE Natural Substation is not visible from Sesnon Boulevard. Policy 11.2 of the City's General Plan calls for protection and enhancement of views of scenic resources along or visible from designated scenic highways. Implementation of the Proposed Project would include replacing existing LSTs with new upgraded TSPs in this view. As discussed for View Point 9 later in this section, views from Sesnon Boulevard would result in a negligible change due to the distance between sensitive receptors and the proposed TSPs. The proposed TSP's would also be visible from the part of I-5 that is designated by the city of Los Angeles as a scenic highway. However, the visual impacts would be of a similar magnitude as discussed for View Point 4 later in this section and would be less than significant. Therefore, the Proposed Project would not damage scenic resources such as natural viewsheds in hillside areas. Also, the Proposed Project would be consistent with Policy 11.2 and impacts to scenic resources along Sesnon Boulevard and I-5 would be considered less than significant.

As discussed previously, the city of Santa Clarita General Plan identifies significant ridgelines as features that require protection. As shown on Figure 4.1-2, there is one City-designated significant ridgeline within the City's jurisdictional boundary that is crossed by the alignment of the proposed SCE 66 kV sub-transmission modification. However, within this area implementation of the Proposed Project involves replacing existing LSTs with TSPs and therefore would not substantially alter the existing condition at this location. No substantial alteration or grading of the ridgeline profile would occur, as the only construction work required would be foundation work for the footings of the new TSPs and the rehabilitation of existing access roads. In addition, although not depicting significant ridgelines within the city of Santa Clarita, Figures 4.1-4 through 4.1-7 and 4.1-9, provided later in this section, show that the replacement of LSTs with TSPs would not result in a substantial change to existing views. Therefore, impacts to City-designated significant ridgelines would be considered less than significant.



Map Location



Source: City of Santa Clarita and AECOM Environment 2009.

- 66 kV Subtransmission Modification
- City-designated Significant Ridgelines
- City of Santa Clarita Jurisdictional Boundary
- 66 kV Subtransmission/City
- Existing SCE Substation

N W E S

Aliso Canyon PEA

Figure 4.1-2
Significant Ridgelines

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

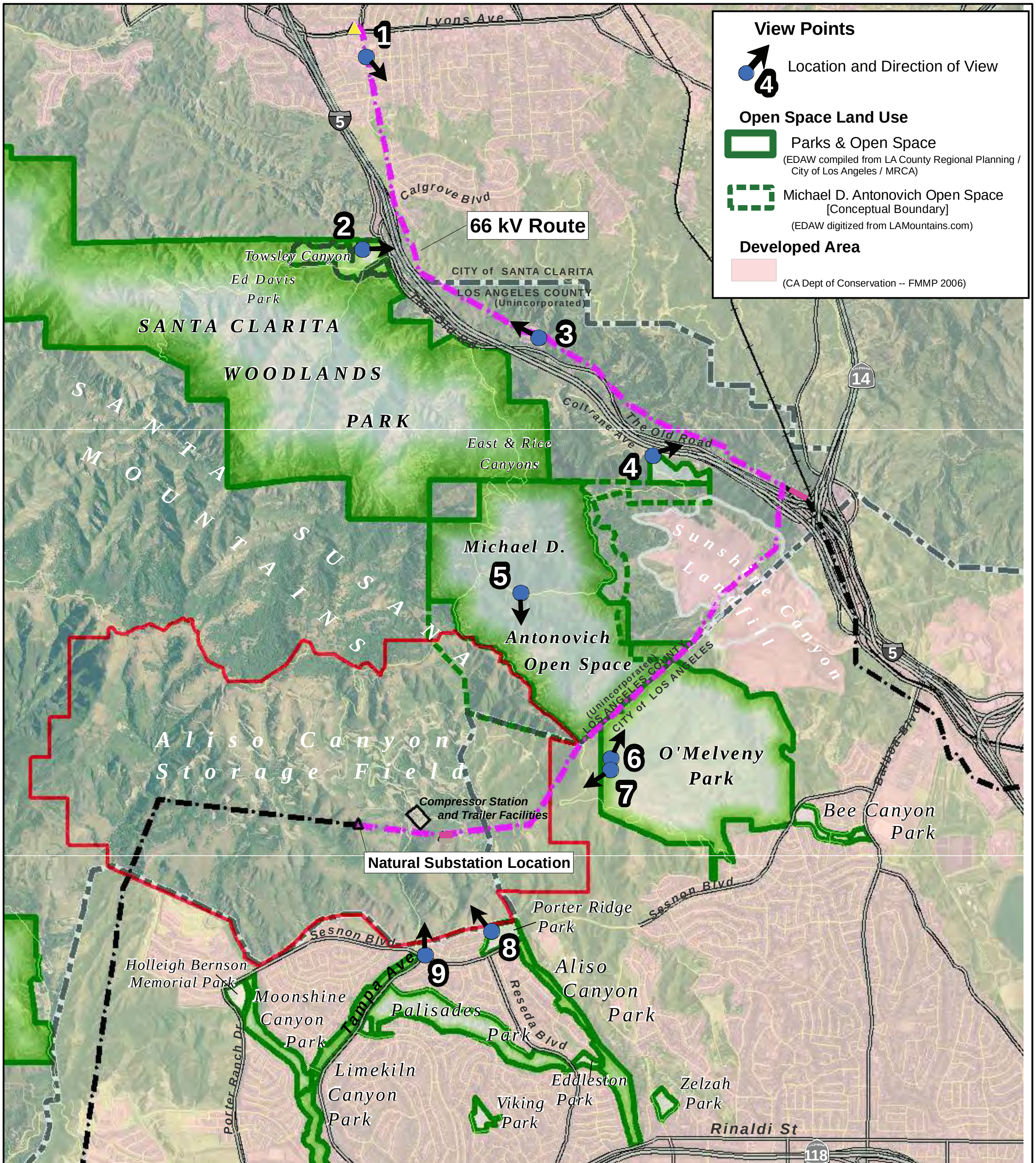
Would the Proposed Project substantially degrade the existing visual character or quality of the site and its surroundings?

The following discussion includes photographs of existing views in the area of the Proposed Project, as well as visual simulations for five existing views.

Figure 4.1-3 provides a key map for nine of the ten selected view point locations. Note that View Point 10, the San Fernando Substation, is not shown on Figure 4.1-3 because of its distance from the alignment of the proposed SCE 66 kV sub-transmission modification. For the location of the San Fernando Substation, refer to Figure 3.1-1 in Chapter 3.0 Project Description. Figures 4.1-4 through 4.1-12 depict photographs of the ten selected existing views as well as the post-Proposed Project views for five of the view point locations. The descriptions and analyses of the existing views and visual simulations are provided in the paragraphs below.

Figure 4.1-4, View Point 1 – Wiley Canyon Road (Facing Southeast). Figure 4.1-4 from View Point 1 provides a before- and after-view from the intersection of Wiley Canyon Road at Evans Ave/La Glorita Circle, facing southeast. This view point is located just south of the Newhall Substation, which is the northernmost point of the proposed substation upgrade. There are two existing LSTs in this view, one in the foreground (left) and one in the background, which are both located in close proximity to residential housing along the busy street of Wiley Canyon Road. Sensitive receptors at this view point location are the existing residents along Wiley Canyon Road. The visual character of this view can be described as developed residential with large trees and shrubs lining the street, and some views of undeveloped rolling hills in the background. The existing LSTs are a dominant visual feature within this view due to their size.

In the Proposed Project simulated view, the existing LSTs have been replaced with specially engineered TSPs. As shown, although the TSPs are slightly taller than the existing LSTs (85 feet tall versus 70 feet tall, respectively), they have a more streamlined look. For example, the footings of the proposed TSPs would be less intrusive to the residential properties than the four-legged LSTs and there would be no metal framework included in the design of the TSPs. Overall, while the TSPs are taller than the existing LSTs, the general visual character of the view has not changed. The view would continue to have the dominant presence of electrical infrastructure within the urban development. Therefore, from this view location the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.



Map Location

Legend

66kV Sub Transmission Modica tion

Existing 66kV Sub-Transmission Lines

Aliso Canyon Storage Field

Existing SCE Substation

Transportation Network (NavTeq 2006 / EDAW updates 2009)

Highways and Main Roads

Streets and Fire Roads

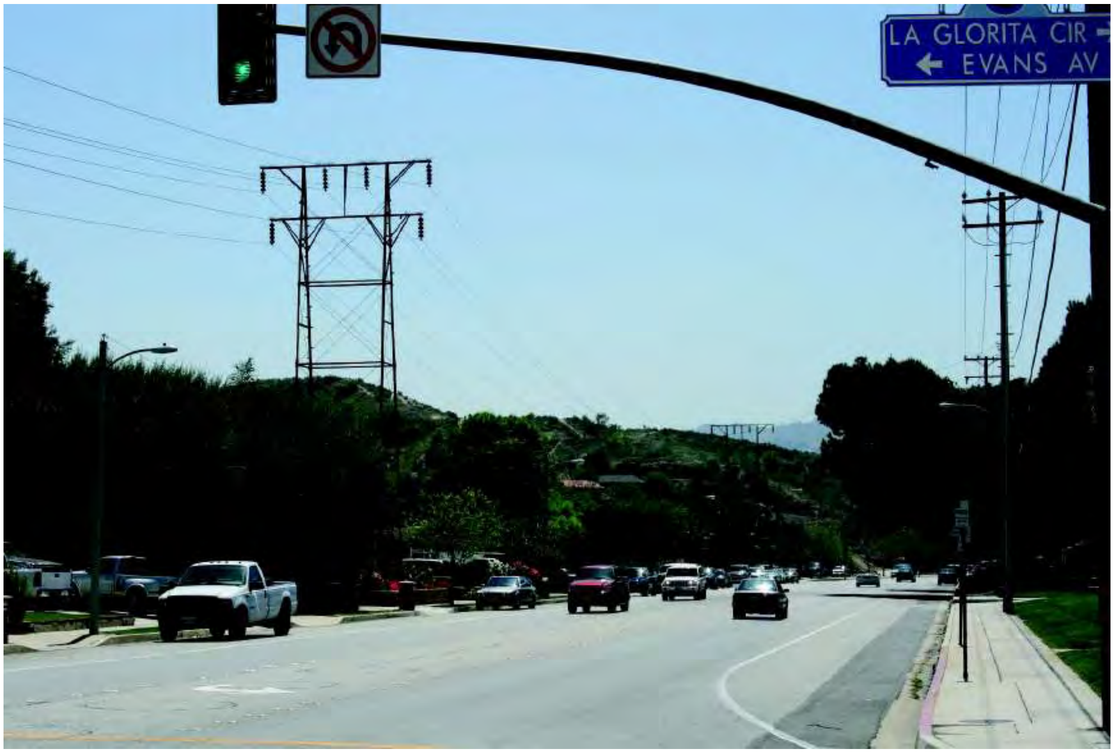
1 inch = 4,500 feet

0 4,000 8,000 Feet

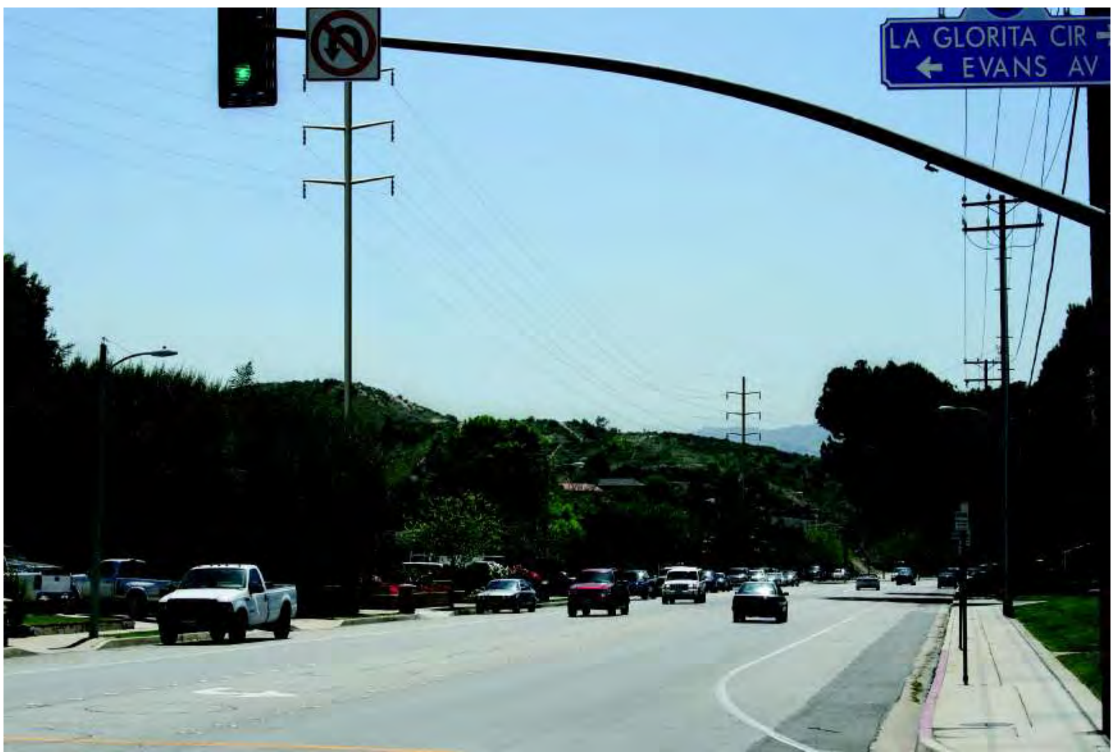
Aliso Canyon PEA

Figure 4.1-3
View Point Locations

Project: 06205-134
Date: September 2009



View Point 1 Existing Conditions: Wiley Canyon Road (Facing Southeast)



View Point 1 Proposed Project Conditions – Visual Simulation

Source: AECOM Environment 2009.

Aliso Canyon PEA

Figure 4.1-4
View Point 1

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 2 Existing Conditions: Towsley Canyon Park (Facing East)

View Point 2 Proposed Project Conditions – Visual Simulation

Source: AECOM Environment 2009.

Aliso Canyon PEA

Figure 4.1-5
View Point 2

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 3 Existing Conditions:
The Old Road Mobile Home Park (Facing Northwest)

View Point 3 Proposed Project Conditions – Visual Simulation

Source: AECOM Environment 2009.

Aliso Canyon PEA

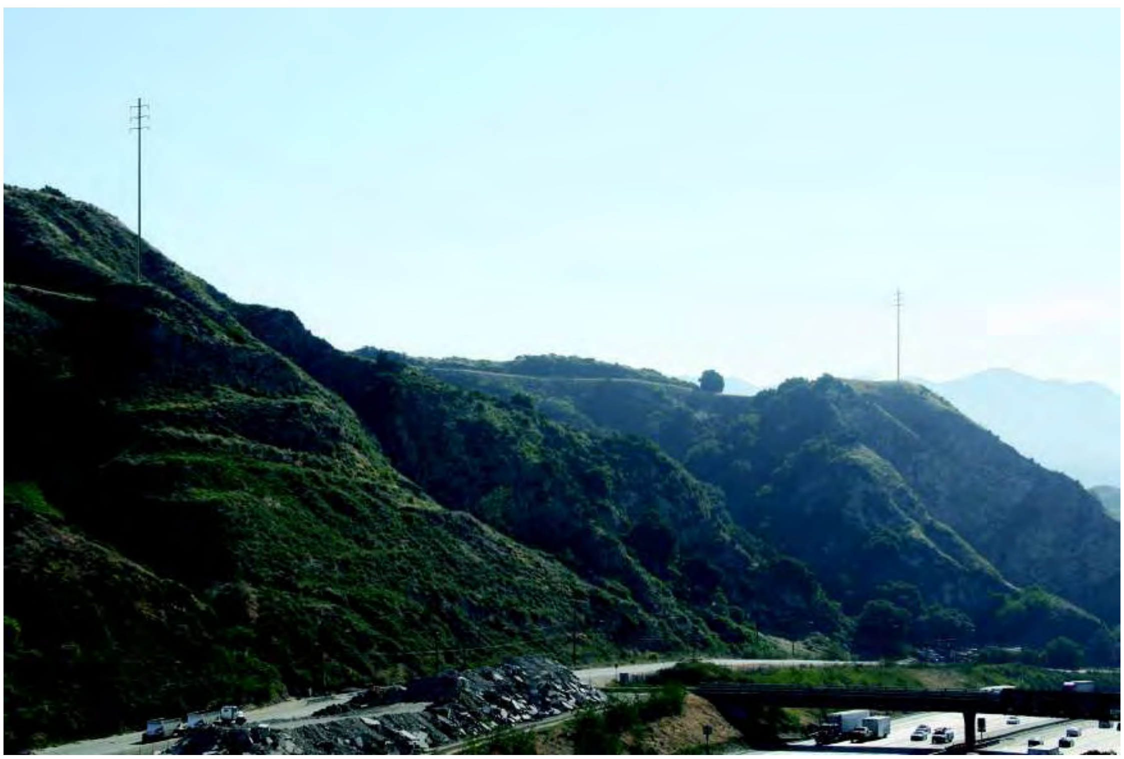
Figure 4.1-6
View Point 3

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 4 Existing Conditions: Michael D. Antonovich Open Space Trailhead (Facing East)



View Point 4 Proposed Project Conditions – Visual Simulation

Source: AECOM Environment 2009.

Aliso Canyon PEA

Figure 4.1-7
View Point 4

Project: 06205-134
Date: September 2009

View Point 5 Existing Conditions: Michael D. Antonovich Open Space (Facing South)

Source: AECOM Environment 200

Aliso Canyon PEA

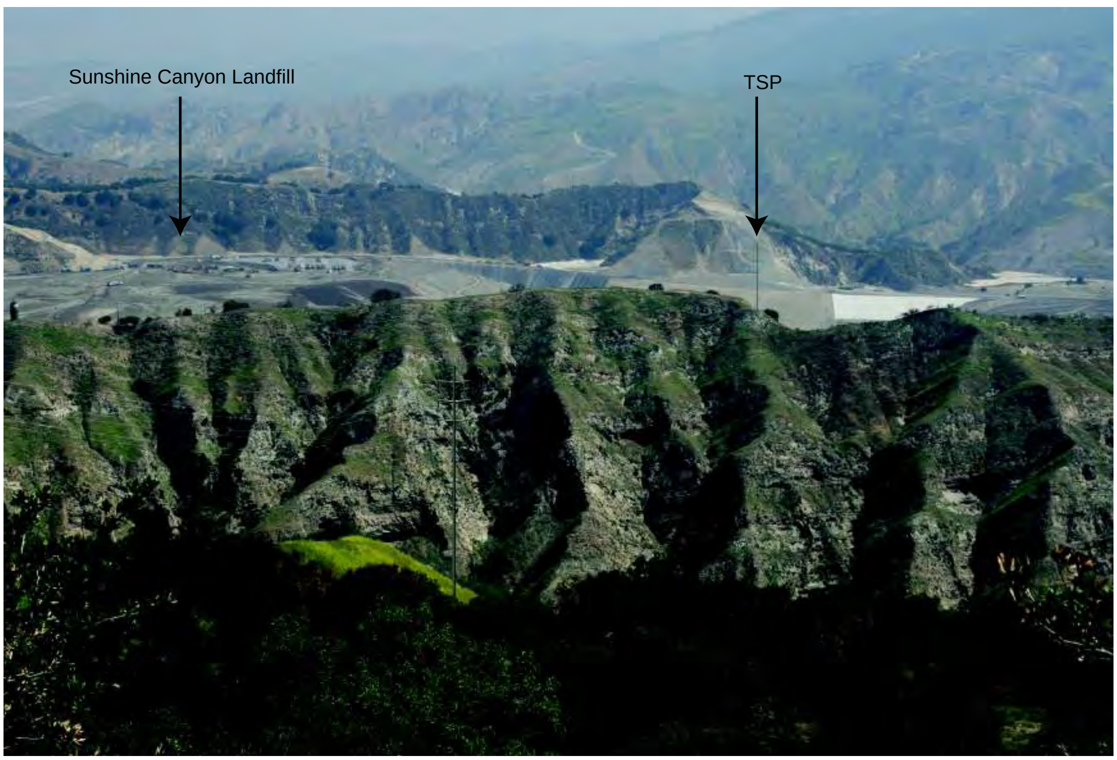
Figure 4.1-8
View Point 5

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 6 Existing Conditions: O'Melveny Park (Facing Northeast)



View Point 6 Proposed Project Conditions – Visual Simulation

Source: AECOM Environment 2009.

Aliso Canyon PEA

Figure 4.1-9
View Point 6

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 7 Existing Conditions: Aliso Canyon Gas Storage Field from O'Melveny Park (Facing Southwest)

Source: AECOM Environment 200

Aliso Canyon PEA

Figure 4.1-10
View Point 7

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 8 Existing Conditions: End of Ormskirk Avenue (Facing Northwest)

View Point 9 Existing Conditions: Tampa Avenue and Sesnon Boulevard (Facing North)

Source: AECOM Environment 200

Aliso Canyon PEA

Figure 4.1-11
View Points 8 and 9

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

View Point 10 Existing Conditions: San Fernando Substation form Brand Park (Facing Northwest)

Source: AECOM Environment 200

Aliso Canyon PEA

Figure 4.1-12
View Point 10

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

Figure 4.1-5, View Point 2 – Towsley Canyon Park (Facing East). Figure 4.1-5 from View Point 2 provides a before- and after-view from the parking lot of Towsley Canyon Park, facing east. As seen in this view, the edge of the parking lot is in the foreground, the Old Road and some low buildings and trees are beyond the parking lot in the middleground, the I-5 Freeway is beyond the trees, and there are two existing LSTs located on top of the ridge in the background. This view point is located west of, and looks across, the I-5 Freeway. Sensitive receptors at this view point location are Towsley Canyon Park users. The visual character of this view can be described as disturbed bare ground and infrastructure (streets), with a dominant view of undeveloped hillsides and ridgeline, with two LSTs.

In the Proposed Project simulated view, the existing LSTs have been replaced with TSPs. As shown, the TSPs are taller than the existing LSTs; however, the change is fairly minor. It should be noted that this view point location was taken from the parking lot of Towsley Canyon Park, and represents the closest view of the proposed TSPs from the extreme east edge of the park. The TSPs would appear smaller from more distant parts within Towsley Canyon Park. Overall, while the heights have increased, the visual character of the view has not changed. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-6, View Point 3 – Crescent Valley Road Mobile Home Park (Facing Northwest). Figure 4.1-6 from View Point 3 provides a before- and after-view from a street within the Old Road Mobile Home Park, facing northwest. The Old Road Mobile Home Park is located within a small canyon and is situated under the sub-transmission lines of two existing LSTs, which are located on the hilltops on both sides of the canyon. One of the existing LSTs is shown in this view. Sensitive receptors at this view point location are the existing residents within the mobile home park community. The visual character of this view can be described as residential surrounded by trees, vegetation, and undeveloped hillsides. The existing LST is a dominant visual feature of this view.

In the Proposed Project simulated view, the existing LST has been replaced with a TSP. As shown, the TSP is taller than the existing LST. However, while the height has changed, the general visual character of the view has not changed. The view continues to have the dominant presence of electrical infrastructure; however the new TSP has a sleeker look with a narrower profile and no metal framework, like that of an LST. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-7, View Point 4 – Michael D. Antonovich Open Space Trailhead (Facing East). Figure 4.1-7 from View Point 4 provides a before- and after-view from the trailhead to the MDA Open Space, facing east. This view point is located west of, and looks across, the I-5 Freeway. There are two existing LSTs in this view, located on top of the ridgeline. Sensitive receptors at this view point location are MDA Open Space trail users. The visual character of this view can be described as undeveloped hillsides with views of the San Gabriel Mountains in the distance and the I-5 Freeway and the Old Road in the foreground. The existing LSTs are quite apparent in this view; however, the undeveloped hillsides and the ridgeline are the dominant visual features.

In the Proposed Project simulated view, the existing LSTs have been replaced with TSPs. As shown, the TSPs are taller than the existing LSTs; however, the overall change is minor. It should be noted that this view point location was taken from the trailhead to the MDA Open Space area, and represents one of the closest views of the proposed TSPs from the MDA Open Space. Recreational users would no longer see this view of the sub-transmission infrastructure once they travel further into the park. Overall, while the heights have increased, the visual character of the view has not changed. The undeveloped hills and the ridgeline continue to be the dominant visual features of this view. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-8, View Point 5 – Michael D. Antonovich Open Space (Facing South). Figure 4.1-8 from View Point 5 provides an existing view only of the LSTs from the trail within the MDA Open Space, facing south. This view point is located near the middle of the MDA Open Space and was selected as a view point because it is one of the few locations on the trail where this section of the SCE 66 kV sub-transmission alignment is visible. There are two existing LSTs in this view; one located on the highest part of the ridge in the middle of the view and the other lower on the ridge to the left of the first LST. Due to the extreme distances between trail users and the existing LSTs, replacement of the LSTs with TSPs would result in a negligible change to this view. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-9, View Point 6 – O'Melveny Park (Facing Northeast). Figure 4.1-9 from View Point 6 provides a before- and after-view from O'Melveny Park, facing northeast. This view point is located near the westernmost border of O'Melveny Park. There are two existing LSTs in this view, one in the foreground and the other on the ridge in the middleground. Sensitive receptors at this view point location are O'Melveny Park users. The visual character of this view can be described as largely undeveloped hillsides and ridges with views of the Sunshine Canyon Landfill beyond the nearest ridge, and the San Gabriel Mountains in the distance. Existing electrical infrastructure is quite visible in this view; however, the undeveloped hillside and ridgeline in the middle of the view is the dominant visual feature of this view.

In the Proposed Project simulated view, the existing LSTs have been replaced with TSPs. As shown, the TSPs are taller than the existing LSTs. Overall, while the heights have increased, the visual character of the view has not changed substantially as the undeveloped hillside and ridgeline in the middle of the view continues to be the dominant feature. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-10, View Point 7 – Aliso Canyon Gas Storage Field from O'Melveny Park (Facing Southwest). Figure 4.1-10 from View Point 7 provides a before- and after-view of the Storage Field property from the extreme western edge of O'Melveny Park, facing southwest. This view point was selected because this west part of O'Melveny Park is the only public area that has views of the Storage Field property. Sensitive receptors from this location include visitors to O'Melveny Park. Implementation of the Proposed Project would allow for the construction and installation of a proposed Central Compressor Station consisting of three new electric-driven compressor trains, a proposed SCE Natural Substation with a proposed PPL serving the proposed Central Compressor Station, as well as the relocation of existing on-site office trailers and guard house. The visual character of this view can be described as largely undeveloped hillsides and ridges with industrial plant on the floor of the canyon.

The proposed project simulated view includes the three poles associated with the PPL that would extend from the proposed SCE Natural Substation to the proposed Central Compressor Station that is visible in the lower central part of the view. The poles are difficult to discern because of their distance from the view point location. The proposed SCE Natural Substation would not be visible from this view point, as it would be located behind the ridge where the most distant proposed PPL pole would be located. The ridge would block the view of the proposed substation. The change in the view would be barely discernable and the overall visual character of this view would remain similar to the existing conditions. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-11 (Top), View Point 8 – End of Ormskirk Avenue (Facing Northwest). Figure 4.1-11 from View Point 8 provides an existing view only of LSTs from the end of Ormskirk Avenue within the Los Angeles City community of Porter Ranch, facing northwest. This view point was selected because it is one of two locations within the residential community of Porter Ranch where the alignment of the proposed SCE 66 kV sub-transmission modification is visible. Sensitive receptors at this view point include residents and visitors of Porter Ranch. There are two existing LSTs in this view; both are located near the top of the hill in the middle of the view. However, due to the distances between private residences and the existing LSTs, replacement of the LSTs with TSPs would result in a negligible change to this view. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-11 (Bottom), View Point 9 – Tampa Avenue and Sesnon Boulevard (Facing North). Figure 4.1-11 from View Point 9 provides an existing view only of LSTs from the intersection of Tampa Avenue and Sesnon Boulevard within the Los Angeles City community of Porter Ranch, facing north. This view point was selected because it is one of two locations within the residential community of Porter Ranch where the alignment of the proposed SCE 66 kV sub-transmission modification is visible, and because it is the only location of the alignment visible from Sesnon Boulevard. Sensitive receptors at this view point include residents and visitors of Porter Ranch. There are two existing visible LSTs in this view; both are located near the top of the hill in the middle of the view. However, due to the distances between private residences/motorists on Sesnon Boulevard and the existing LSTs, replacement of the LSTs with TSPs would result in a negligible change to this view. The proposed SCE natural substation would not be visible from this location. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Figure 4.1-12, View Point 10 – San Fernando Substation (Facing Northwest). Figure 4.1-12 from View Point 10 (location not shown on Figure 4.1-3) provides an existing view only of the San Fernando Substation taken from Brand Park, facing northwest. The San Fernando Substation is located just west of the I-5 Freeway on San Fernando Mission Boulevard, as shown on Figure 3.1-1 in Chapter 3.0 Project Description. Sensitive receptors at this view point location are park users at Brand Park, which is separated from the substation by San Fernando Mission Boulevard, residences located along San Fernando Mission Boulevard, and visitors to the Mission San Fernando Rey de España (San Fernando Mission), which is located just west of the substation. The San Fernando Mission is a building of historic significance and is listed as a national historic landmark and a California historical landmark on the National Register of Historic Places and the California Office of Historic Preservation, respectively. The San Fernando Substation is visible from the approach and entrance to the San Fernando Mission. The visual character of this view can be described as a developed urban area with residential, commercial, and recreational land uses. The existing substation and associated sub-transmission poles are quite apparent.

Implementation of the Proposed Project would install up to four new TSPs to replace existing sub-transmission poles within and immediately adjacent to the San Fernando Substation. While the final number, configuration, and heights of the new TSPs required at this location is unknown at the time of the preparation of this section, the modifications would be similar to those presented on Figures 4.1-4 through 4.1-7 and 4.1-9, shown previously. The TSPs would likely be substantially taller than the existing poles; however, they would have a more streamlined look with less intrusive footings and no metal framework. Overall, the general visual character of the view would not change, as it would continue to have a very apparent presence of electrical infrastructure within an urban environment. Therefore, from this view location, the change in visual character and quality with implementation of the Proposed Project would be considered less than significant.

Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Operation of the Proposed Project would not introduce any new sources of substantial light or glare which could adversely affect day or nighttime views in the area. The proposed SCE Natural Substation will not include night lighting; the facility will be an unmanned substation such that night lighting is not required during general operations. Night lighting would only occur during rare occurrences of night repair activities and would not be visible from any public receptor locations. Therefore, impacts would be less than significant.

4.1.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** on aesthetics, therefore no mitigation is required or proposed.

4.1.6 References

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4.2 Agricultural Resources

This section describes the agricultural resources in the area of the Proposed Project. The potential impacts are also discussed.

The Proposed Project components that do not involve ground disturbance, and do not interfere with existing or planned agricultural uses were not assessed. For this resource area, these components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations and related support activities.

4.2.1 Existing Agricultural Setting

According to the annual *Los Angeles County Crop and Livestock Report*, agriculture accounted for an estimated $270,915,000 in 2006 (Los Angeles County 2008). The primary agricultural products produced in Los Angeles County include ornamental trees and shrubs, bedding plants, root vegetables, orchard fruit, and alfalfa hay. As this report details, nursery products remain the number one crop produced in Los Angeles County. In addition to cultivated areas, there are an estimated 228,730 acres suited for grazing lands (California Department of Conservation [CDC], 2006). The emerging trend for agriculture in Los Angeles County is one of less farming and of less land being used for agricultural activities. The County is highly urbanized and much of the usable agrarian land has been developed. The 2002 United States Census of Agriculture counted a total of 1,543 farms in the County, showing a 7 percent decrease from the previous census in 1997 (Los Angeles County, 2008).

Section 21060.1 of CEQA defines agricultural land as “prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California.” The State of California has modified the classifications for prime farmland and farmland of Statewide importance by requiring that these lands be irrigated (CDC 2008). Approximately 4 percent of land in Los Angeles County is classified as Important Farmland (CDC 2006) and is summarized in Table 4.2-1, Summary of Important Farmland in Los Angeles County.

Table 4.2-1 Summary of Important Farmland in Los Angeles County

	Inventoried Acreage in Los Angeles County	**Percent of Total Acreage in Los Angeles County**
Prime Farmland	32,610	3 percent
Farmland of Statewide Importance	1,024	< 1 percent
Unique Farmland	1,024	< 1 percent
Farmland of Local Importance	8,973	< 1 percent
Important Farmland Total	**43,631**	**4 percent**

Source: CDC 2006

As shown on Figure 4.9-2 prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the CDC, there is one 14.75-acre parcel of designated prime farmland immediately east of I-5 in the city of Santa Clarita. The parcel is currently zoned for commercial use and the land use designation is that of Mixed Use (MX). Based on visual observations during the site visit, this parcel of land appeared to have been previously used as a horse rearing facility and did not appear to be in active use (Maddux, pers. comm. 2009). According to the Santa Clarita Valley's Technical Background Report (2004), this pocket of prime farmland is part of a larger area known as the I-5 Horse Ranch property, which has been identified as an area "susceptible to change" by County and City Planning staff (EIP Associates 2004). The area is expected to undergo residential or commercial development by the city of Santa Clarita (Smisko, pers. comm., 2009).

As shown on Figure 4.9-2, the vast majority of Los Angeles County land within the Proposed Project area is currently zoned A-2-2 (Heavy Agriculture). According to the County zoning code, the A-2 designation is intended to accommodate a variety of agricultural uses. Permitted uses include dairies, crop fields, animal hospitals, greenhouses, and the grazing of cattle, horses, sheep, llamas, and goats. Other permitted uses include oil wells and "the storage, handling, recycling and transportation of oil, gas and water to and from the premises" (Los Angeles County, 2008). Under the A-2 designation, "electric distribution substations, electric transmission substations and generating plants" are considered permitted uses provided a conditional use permit has first been obtained. The Storage Field is zoned for A-2 Heavy Agricultural use; however, it is not designated prime farmland and is not currently being used for agriculture. According to the County of Los Angeles General Plan (2008) Figure 6.4 Agricultural Resource Areas, the Storage Field has been primarily identified as an "unincorporated area" surrounded by areas of grazing lands. The majority of the existing SCE 66 kV sub-transmission route passes through County lands zoned as A-2 Heavy Agriculture and a small portion crosses City of Los Angeles lands zoned A1-Agricultural.

Other than the pocket of prime farmland in the city of Santa Clarita, there are no other areas of "important farmland" designated within the Proposed Project vicinity. Due to regional topography, several designated agricultural areas within the Proposed Project area are not currently used for agricultural purposes (City of Santa Clarita, 2009). Presently, the only Williamson Act contract in the County is for the preservation of open space on Santa Catalina Island (Los Angeles County 2008). Therefore, there are no Williamson Act contracted lands in the project area.

Regulatory Framework

Note, Article XII, section 8, of the California Constitution states, "[a] city, county, or other public body may not regulate matters over which the Legislature grants regulatory power to the [Public Utilities] Commission." The Public Utilities Code authorizes the CPUC to "do all things, whether specifically designated in this act or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction." Cal. Pub. Util. Code §701. Other Public Utilities Code provisions generally authorize the CPUC to modify facilities, to secure adequate service or facilities, and to operate so as to promote health and safety. Thus, under the California Constitution and Public Utilities Code, the CPUC has broad authority to preempt local regulation of public utilities, particularly when a local government attempts to unduly burden a public utility use or operations. Cities and Counties cannot impose regulations that place significant burdens on utility operations. In addition, in the context of electric utility projects, CPUC G.O. 131-D, Section XIV.B states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters."

Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and city agricultural regulations are not anticipated to apply to the Proposed Project.

County of Los Angeles General Plan- Land Use Element (1993)

This PEA discusses currently applicable provisions of the General Plan[1]. The following policies pertaining to agriculture from the Land Use Element (1993) of the Los Angeles County General Plan are potentially relevant to the Proposed Project:

Land Use Element, Policy 10: In urban areas, encourage the retention of economically viable agricultural production, e.g., high value crops such as strawberries, cut flowers, nursery stock, etc., through the identification and mitigation of significant adverse impacts resulting from adjacent new development.

Land Use Element, Policy 20: Protect identified Potential Agricultural Preserves by discouraging inappropriate land division and allowing only use types and intensities compatible with agriculture.

Land Use Element, Policy 21: In non-urban areas outside of Potential Agricultural Preserves, encourage the retention and expansion of agriculture by promoting compatible land use arrangements and providing technical assistance to involved farming interests.

The following policies from the Land Use Element of the city of Santa Clarita and city of Los Angeles may be relevant to the Proposed Project.

City of Santa Clarita General Plan Land Use Element (1991)

Land Use Element, Policy 2.8: Explore the utility ROWs for tree farms, nurseries, row crops, trails, and greenbelts.

City of Los Angeles General Plan Conservation Element (2001)

Conservation Element, Section 2: Continue to encourage the retention of parcels in agricultural and low density land use and zoning categories that will encourage their retention in agricultural and related use.

4.2.2 Significance Criteria

The significance criteria for assessing the impacts to agricultural resources come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to nonagricultural use;

[1] An updated version of the Los Angeles County General Plan (2008) is currently under review and being proposed for adoption.

- Conflict with existing zoning for agricultural use, or a Williamson Act contract; or
- Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to nonagricultural use.

4.2.3 Applicant Proposed Measures

There are no APM's associated with agricultural resources.

4.2.4 Environmental Impact Analysis

The potential impact to agricultural resources from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential agricultural resource impacts, construction and operation impacts are discussed together for each CEQA criteria.

Would the Proposed Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to nonagricultural use?

Within the city of Santa Clarita, the proposed SCE 66 kV sub-transmission modification roughly parallels the eastern boundary of a 14.75-acre parcel of prime farmland. This area of prime farmland is not in active agricultural production and the city of Santa Clarita has zoned the area for commercial use (pers comm. with City of Santa Clarita 2009). The alignment of the proposed SCE 66 kV sub-transmission modification follows an existing transmission right-of-way and would involve the replacement of poles along an already disturbed area. Other than this 14.75-acre parcel of prime farmland, there are no other areas of designated farmland in the Proposed Project area. Project components within the Storage Field, including the proposed Central Compressor Station, the proposed PPL, the proposed SCE Natural Substation, the proposed office trailer and guard house relocation would not convert designated farmland to nonagricultural use, as no designated farmlands exist within the Storage Field property or in the immediate area. Construction and operation of the Proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use. There would be no impact.

Would the Proposed Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Except for the portion of the 66-kV route within the City of Santa Clarita, the entire project site is zoned for agricultural uses by either the County or City of Los Angeles. However many of these areas are not in active agricultural production. The Proposed SCE 66 kV sub-transmission modification would involve one-to-one pole replacement of existing poles along an existing utility corridor, however additional poles may be required to maintain minimum clearances.

Electric utility infrastructure is an allowable use within these zoning codes and thus would not conflict with existing zoning for agricultural use. A small portion of new ROW within the Storage Field property may need to be widened, however no existing buildings or structures would need to be moved. The land is zoned for agriculture, which includes grazing. The Proposed Project would not impede or diminish the current zoning because there would be no physical barrier to limit the free movement of cattle and other livestock from one side of the Proposed SCE 66 kV sub-transmission line to the other. There are currently no Williamson Act contracted lands in the Proposed Project area; therefore the Proposed Project would not remove land from Williamson Act status.

Project components within the Storage Field, including the proposed Central Compressor Station, the proposed PPL, the proposed SCE Natural Substation, the proposed office trailer and guard house relocation are also located within the County's A-2 (Heavy Agriculture) zoning designation. Under the A-2 designation, gas storage is considered a permitted use, as are electric transmission substations provided a conditional use permit has first been obtained. Currently, the Aliso Canyon Storage Facility operates under a Conditional Use Permit (CUP) approved by the City and County of Los Angeles. The CUP limits of conformance have been defined by Exhibit A, the facility "plot plan". The Proponent will submit to the County of Los Angeles a revised Exhibit A showing the location of new facilities for inclusion in the CUP permit file, per the request of the County Planning Department. .

Although the Storage Field is zoned for agricultural use, it is not actively used for agricultural purposes. According to SoCalGas, there are no known Grazing Rights established for the Storage Field; however there are occasional sheep and cattle that graze within the area (Schroeder, pers comm. 2009). As indicated in Section 4.4 Biological Resources, project activities that are proposed to occur within the Plant Station area (locations of proposed office trailer relocation and proposed Central Compressor Station) of the Storage Field will likely take place entirely in areas that have been previously disturbed during the original construction of this facility. The location for the proposed SCE Natural Substation is also heavily disturbed. Because the nature of the Proposed Project involves the replacement of buildings and infrastructure in areas that have been previously disturbed during the original development of these facilities, there would be no loss of grazing lands for any future agricultural use. Based on the final project design, a relatively small amount of grasslands may be affected during construction; however these would be temporary impacts and would not impact future grazing activities. Furthermore, disturbed areas would be revegetated after construction.

In addition, proposed modifications at the SCE San Fernando Substation would occur on land currently zoned Agricultural Suburban (A, RA). SCE proposes to modify the San Fernando Substation with the removal of four existing LSTs and installation of four TSPs, three of which may occur outside of the substation boundary. This substation and the towers in the immediate vicinity, including those that will be replaced, are located in a developed or landscaped urban area devoid of designated farmland or grazing areas. As the area is not currently used for agriculture and the Proposed Project would not impact the agricultural zoning designation or convert usable farmland to a nonagricultural use, the Proposed Project would have no impact on future use.

Would the Proposed Project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to nonagricultural use?

The Proposed Project is located entirely within existing SCE ROWs and areas that have been previously disturbed during the original development of these facilities on the Storage Field property. Construction and pole locations have been designed to avoid farmland to the extent possible, and the majority of such areas would be restored following project construction. Any impacts from pole placement would be temporary. The Proposed Project would involve minor, localized impacts related to vegetation removal and temporary soil disturbance. Thus, the Proposed Project would not create any changes in the environment that would result in conversion of existing farmland to nonagricultural use.

4.2.5 Mitigation Measures

The Proposed Project was determined to have **no impact** on agricultural resource therefore no mitigation is required or proposed.

4.2.6 References

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4.3 Air Quality

This section describes existing air quality conditions, regulatory framework, and potential impacts from the construction and operation of the Proposed Project, as well as measures proposed to reduce potential adverse impacts. Air emissions will be generated during both the construction and operation of the Proposed Project. This section analyzes potential air quality impacts associated with the short-term construction and long-term operation of the Proposed Project and identifies potential measures to lessen and/or avoid significant adverse project-related air quality impacts. The significance of potential air quality impacts were determined using significance criteria established through CEQA and adopted by the South Coast Air Quality Management District (SCAQMD).

Project components that will not result in any air emissions are not discussed. These components include upgrades at the Newhall, Chatsworth, and San Fernando Substations including installation of upgraded relay systems, current transformer connections, and dedicated digital communication.,.

4.3.1 Existing Air Quality Setting

The Proposed Project is located in the county of Los Angeles, within the South Coast Air Basin (SCAB). The SCAB is a sub-area of the SCAQMD jurisdiction that is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The facility operates under a Title V and RECLAIM Permit (SCAQMD Facility No. 800128). It is a 6,600-square-mile area that encompasses all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. In terms of overall air quality, the SCAB is considered to have some of the worst air quality in the United States. The SCAQMD is the regulatory agency responsible for ensuring that the SCAB meets or has plans to meet both Federal and State air quality standards.

4.3.1.1 Climate

Air quality in a region is primarily affected by the type and amount of contaminants emitted into the atmosphere in the region. However, topographical, and meteorological conditions such as temperature, wind, humidity, precipitation, cloud cover, and influx of solar radiation significantly impact the dispersion or trapping of the emitted pollutants, thus playing a major role in the prevailing air quality conditions. Within the SCAB, frequent formation of inversion layers traps the air pollutants in the basin leading to increased pollution episodes. The SCAB has low mixing heights and light winds, which are conducive to the accumulation of air pollutants.

Temperature has a significant impact on wind flow, pollutant dispersion, vertical mixing, and photochemistry within the region. Annual average temperatures throughout the SCAB vary from the low to middle 60 degree Fahrenheit (ºF). January is the coldest month throughout the SCAB, with average minimum temperatures of 47ºF in downtown Los Angeles and 36ºF in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100ºF. More than 90 percent of the rainfall in the region occurs from November through April. Annual average rainfall varies from approximately nine inches in Riverside to 14 inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thundershowers near the coast and slightly heavier shower activity in the eastern portion of the region and near the mountains. Rainy days comprise 5 percent to 10 percent of all days in the SCAB, with the frequency being higher near the coast. The nearest meteorological station to the Proposed Project site is the Burbank Valley station, which recorded annual average high and low temperatures of 77.9°F and 50.9°F respectively, from 1939 to 1990. The average annual rainfall measured during the same period was 22.2 inches.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with traveling storms moving through the region from the northwest. This period also brings 5 periods to 10 periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind.

The vertical dispersion of air pollutants in the SCAB is frequently restricted by the presence of a persistent temperature inversion in the atmospheric layers near the earth's surface. Normally, the temperature of the atmosphere decreases with altitude; however, when the temperature of the atmosphere increases with altitude, the phenomenon is termed an inversion. An inversion condition can exist at the surface or at any height above the ground. The bottom of the inversion, known as the mixing height, is the height of the base of the inversion.

In general, inversions in the SCAB are lower before sunrise than during the daylight hours. As the day progresses, the mixing height normally increases as the warming of the ground heats the surface air layer. As this heating continues, the temperature of the surface layer approaches the temperature of the base of the inversion layer. When these temperatures become equal, the inversion layer's lower edge begins to erode, and if enough warming occurs, the layer breaks up. The surface layers are gradually mixed upward, diluting the previously trapped pollutants. The breakup of inversion layers frequently occurs during mid- to late-afternoon on hot summer days. Winter inversions usually break up by mid-morning.

4.3.1.2 Ambient Air Quality

Health-based air quality standards have been established by the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and 2.5 microns in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead. The Federal standards are called National Ambient Air Quality Standards (NAAQS), and the California standards are called California Ambient Air Quality Standards (CAAQS).

The USEPA classifies air basins as either attainment or "non-attainment" for each criteria pollutant based on whether or not the NAAQS have been achieved. Some air basins have not received sufficient analysis for certain criteria air pollutants and are designated as "unclassified" for those pollutants. Similarly, areas have been designated as attainment, non-attainment, or unclassified with respect to the CAAQS. The CAAQS and NAAQS and the corresponding attainment status for the SCAB are listed in Table 4.3-1. The SCAB is non-attainment for both the Federal and State ozone, PM_{10}, and $PM_{2.5}$ standards.

Table 4.3-1 State and Federal Ambient Air Quality Standards

South Coast Air Basin Attainment Status					
Pollutant	**Averaging Time**	**California Standards**		**Federal Standards**	
		Concentration	**Attainment Status**	**Concentration**	**Attainment Status**
Ozone	1-hr	0.09 ppm	Non-attainment	--	--
	8-hr	0.070 ppm	Non-attainment	0.075 ppm	Non-attainment
PM_{10}	24-hr	50 μg/m^3	Non-attainment	150 μg/m^3	Non-attainment
	Annual Arithmetic Mean	20 μg/m^3	--		--
$PM_{2.5}$	24-hr	No separate state standard	Non-attainment	35 μg/m^3	Non-attainment
	Annual Arithmetic Mean	12 μg/m^3	--	15 μg/m^3	--
Carbon Monoxide (CO)	8-hr	9.0 ppm	Attainment/ Unclassifiable	9 ppm	Attainment/ Unclassifiable
	1-hr	20.0 ppm	--	35 ppm	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	--	0.053 ppm	--
	1-hr	0.18 ppm	Attainment/ Unclassifiable	--	Attainment/ Unclassifiable
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	--	0.030 ppm	--
	24-hr	0.04	Attainment/ Unclassifiable	0.14 ppm	Attainment/ Unclassifiable
	1-hr	0.25 ppm	--	--	--
Lead	30-day Average	1.5 μg/m^3	Attainment/ Unclassifiable	--	--
Visibility Reducing Particles	8-hour	See note below	Attainment/ Unclassifiable	N/A	N/A
Sulfates	24-hour	25 μg/m^3	Attainment/ Unclassifiable	N/A	N/A
Hydrogen Sulfide	1-hour	0.03 ppm	Attainment/ Unclassifiable	N/A	N/A
Vinyl Chloride	24-hour	0.01 ppm	Attainment/ Unclassifiable	N/A	N/A

Source: California Air Resources Board; USEPA Green Book

Note: Visibility Reducing Particles: Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07-mile to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.

The SCAB has until 2024 to achieve the Federal 8-hour ozone ambient air quality standard, and has until 2010 to achieve the Federal 24-hour $PM_{2.5}$ standard, but is requesting the USEPA for a 5- year extension due to the severity of the $PM_{2.5}$ problem. Currently, the SCAB meets the 24-hour average Federal PM_{10} standard and is expected to continue to meet the standard through 2015.

The SCAQMD has 38 air quality monitoring stations that monitor and collect ambient air quality measurements for these specific pollutants within the basin. The nearest monitoring station to the Proposed Project is located in Reseda, ~ 7 miles south of the proposed Central Compressor Station site. Monitoring stations are also located in Santa Clarita and Burbank, ~ 8.5 miles northeast and 17 miles southeast of the proposed Central Compressor Station, respectively. Table 4.3-2 summarizes the pollutants monitored and the approximate distances of the monitoring stations from the Project compressor station. Table 4.3-3 summarizes the ambient air quality data collected for the years 2006 through 2008. The air quality data is complied from the Reseda station for NO_2, CO, and ozone and from the Burbank station for PM_{10}, $PM_{2.5}$, and SO_2.

Table 4.3-2 Air Quality Monitoring Stations Near the Project

Monitoring Site	Address	Pollutant						Location	
		CO	NO_2	O_3	PM_{10}	$PM_{2.5}$	SO_2	Miles	Direction
Reseda	18330 Gault Street	X	X	X	--	--	--	7.0	SW
Santa Clarita	22224 Placerita Canyon Road	X	X	X	X	--	--	8.5	E
Burbank	228 W Palm Avenue	X	X	X	X	X	X	17	SW

As shown in Table 4.3-3, CO, NO_2 and SO_2 concentrations recorded at the nearby monitoring station are well below federal and state standards. Ozone concentrations have exceeded federal and state AAQS between 2006 and 2008. Measured PM_{10} and $PM_{2.5}$ concentrations at the monitoring stations have also exceeded state standards over the past three years.

Table 4.3-3 Background Air Quality Data (2006 - 2008)

Constituent	Maximum Observed Concentration (Number of Standard Exceedances - most restrictive)				
	State Standard	Federal Standard	2006	2007	2008
CO					
1-hr	20.0 ppm	35.0 ppm	5.0 (0 days)	4.0 (0 days)	2.48 (0 days)
8-hr	9.0 ppm	9.5 ppm	3.48 (0 days)	2.76 (0 days)	2.88 (0 days)
Ozone					
1-hr	0.09 ppm	0.12 ppm	0.123 (23 days)	0.129 (21 days)	0.158 (34 days)
8-hr	0.07 ppm	0.08 ppm	0.109 (55 days)	0.105 (43 days)	0.103 (39 days)
NOx					
1-hr	0.25 ppm	---	0.073 (0 days)	0.081 (0 days)	0.091 (0 days)
Annual	---	0.053 ppm	0.018	0.018	0.018
SOx					
1-hr	0.25 ppm	---	0.01 (0 days)	0.01 (0 days)	0.11 (0 days)
3-hr	---	0.5 ppm	---	---	---
24-hr	0.04 ppm	0.14 ppm	0.004 (0 days)	0.003 (0 days)	0.003 (0 days)
Annual	---	0.03 ppm	0.001	0.001	0.001
PM_{10}					
24-hr	50 µg/m^3	150 µg/m3	71 (10 days)	109 (5 days)	66 (5 days)
Annual	20 µg/m^3	--	37	33	---

Table 4.3-3 Background Air Quality Data (2006 - 2008)

Constituent	Maximum Observed Concentration (Number of Standard Exceedances - most restrictive)				
	State Standard	Federal Standard	2006	2007	2008
$PM_{2.5}$					
24-hr	12 µg/m^3	65 µg/m^3	50.7 (22 days)	56.5 (---)	57.4 (---)
Annual	--	35 µg/m^3	16.5	16.9	---

Source: CARB Air Quality Data Statistics (CARB, 2009a). NOx, volatile organic compounds (VOCs), and CO are from Reseda Monitoring Station; PM_{10}, $PM_{2.5}$ and SO_2 are from Burbank Monitoring Station. '---' denotes insufficient or no data. SCAQMD provides monitoring data to CARB's Air Quality Monitoring Network, represented in Table 4.3-3; data also available at www.aqmd.gov/smog/historicaldata.html

4.3.1.3 Regulatory Framework

Most Federal programs to monitor and regulate stationary source emissions are delegated to regional air quality management districts, such as the SCAQMD, in California. State programs administered through the CARB primarily control air quality pollutants from the operation of mobile sources. Federal, State and local authorities have adopted various rules and regulations requiring evaluation of the impact on air quality of a planned project and appropriate mitigation for air pollutant emissions. A brief description of the regulatory setting and planning efforts is given below.

Federal Plans, Policies, Regulations and Laws

The Federal government first adopted the Clean Air Act (CAA) in 1963 to improve air quality and protect citizen's health and welfare. The CAA established two types of national air quality standards: primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly, and secondary standards set limits to protect public welfare, including protection against decreased visibility, or damage to animals, crops, vegetation, and buildings. The USEPA has established NAAQS for six principal or "criteria" pollutants. Pursuant to the CAA, USEPA classifies air basins (i.e., distinct geographic regions) as either attainment or "non-attainment" for each criteria pollutant, based on whether or not the Federal ambient air quality standards have been achieved. Some air basins have not received sufficient analysis for certain criteria air pollutants and are designated as "unclassified" for those pollutants. The SCAQMD and CARB are the responsible agencies for providing attainment plans and for demonstrating attainment of these standards. The USEPA reviews and approves these plans and regulations that are designed to achieve attainment and maintain attainment status with the NAAQS.

The USEPA enforces a number of regulations under the authority of the federal CAA (such as Standards of Performance for New Stationary Performance Source [NSPS], National Emission Standards for Hazardous Air Pollutants [NESHAPs], Prevention of Significant Deterioration [PSD], New Source Review [NSR], etc.); however, these regulations do not apply to the Proposed Project as the Proposed Project does not include any major stationary emission sources. The USEPA also enforces on-road and off-road engine emission reduction programs that indirectly affect the Proposed Project's emissions through the phasing in of cleaner on- and off-road equipment engines.

State Plans, Policies, Regulations and Laws

California Clean Air Act. The CARB is responsible for implementing the California Clean Air Act (CCAA) and the federal CAA. The CCAA requires that each area exceeding the state ambient air quality standards to develop a plan aimed at achieving those standards. The California Health and Safety Code, Section 40914, requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5 percent or more, averaged every consecutive 3-year period. To satisfy this requirement, the local Districts' are required to develop and implement air pollution reduction measures, which are described in their Air Quality Management Plans (AQMPs) and outline strategies for achieving the state ambient air quality standards for criteria pollutants for which the region is classified as non-attainment.

AB 32 California Global Warming Solutions Act of 2006. California's major initiatives for reducing climate change or greenhouse gas (GHG) emissions are outlined in Assembly Bill 32 (signed into law in 2006). These initiatives require GHG emissions to be reduced to 1990 levels by 2020 - a reduction of about 25 percent, and to be reduced 80 percent below 1990 levels by 2050. The AB 32 Scoping Plan contains the main strategies California will use to reduce the GHGs that cause climate change. The Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system; these measures have been introduced through various workshops and continue to be developed.

The CEQA guidelines have not yet been amended to include GHG significance thresholds. The State Office of Planning and Research (OPR) issued draft CEQA regulations for review in April 2009; amendment review and rulemaking will be conducted during 2009. CEQA revisions including GHG thresholds are not anticipated to be finalized until after the CPCN for the Proposed Project has been filed with the CPUC.

Regional and Local Plans, Policies, Regulations and Ordinances

The SCAQMD is the regional agency responsible for the regulation and enforcement of Federal, State, and local air pollution control regulations in the SCAB. The SCAQMD has the responsibility of ensuring that Federal and State ambient air quality standards are achieved and maintained in the SCAB. SCAQMD rules and regulations require that any equipment that emits or controls air contaminants be permitted prior to construction, installation, or operation (Permit to Construct or Permit to Operate). The SCAQMD also has visible emissions, nuisance, and fugitive dust regulations which are applicable to the Proposed Project during construction activities. These specific regulations include SCAQMD Rule 401 (Visible Emissions); SCAQMD Rule 402 (Nuisance); and SCAQMD Rule 403 (Fugitive Dust). The intent of these rules is to limit the amount of visible emissions and fugitive dust generated from emission sources and to ensure emitted pollutants do not cause a public nuisance. SCAQMD Rule 403 provides control measures to reduce overall fugitive dust emissions from construction activities. Based on the description of the construction activities for the Proposed Project, the amount of soil to be excavated, and the acreage of the disturbed areas, the Proposed Project does not classify as a "large operation." However, to minimize fugitive dust emissions, feasible fugitive dust control measures as stated in the applicable rules would be implemented as APMs to reduce potential impacts to off-site receptors (SCAQMD, 2009a).

4.3.2 Significance Criteria

Based on significance criteria from the CEQA checklist, the Proposed Project would result in a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

For the purposes of evaluating the air quality impacts of a project under CEQA, the SCAQMD has established quantitative thresholds that are used to evaluate the Project impacts. These significance thresholds are listed in Table 4.3-4 and include both emissions and concentration-related significance thresholds.

In addition, the SCAQMD has also developed a localized significance threshold (LST) methodology to evaluate the potential localized impacts of criteria pollutants from construction and operational activities (SCAQMD, 2008). The localized significance threshold methodology requires an analysis regarding whether or not emissions of specified criteria pollutants would cause ambient air quality standards to be exceeded at the nearest off-site receptor. The localized significance threshold analysis is performed for emissions of CO, NO_2, PM_{10} and $PM_{2.5}$. The SCAQMD has developed localized significance thresholds lookup tables that utilize the allowable concentrations of pollutants (shown in Table 4.3-4) combined with distances from the construction or operational areas to calculate allowable emission rates. The lookup tables are specific for the source/receptor area in the basin as they also include pollutant background and meteorological data-specific to the area. For sources that do not fit the construction or operational criteria in the lookup tables, source-specific modeling is conducted to estimate the receptor pollutant concentration and assess whether it is below the values shown in Table 4.3-4. The lookup tables can only be used for projects less than five acres in size and requires knowledge of the distance from the project site to the nearest offsite receptor. The Proposed Project is greater than five acres; therefore SCAQMD localized thresholds have not been included in this analysis.

Table 4.3-4 Air Quality Significance Thresholds

Pollutant	Construction	Operation
Criteria Pollutants Mass Daily Thresholds		
NO_x	100 pounds per day (lbs/day)	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TAC) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (Proposed Project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants		
NO_2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm/339 µg/m^3 (State) 0.03 ppm/57 µg/m^3 (State)	
PM_{10} 24-hour average Annual geometric mean	 10.4 µg/m^3 (construction) and 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	 10.4 µg/m^3 (construction) and 2.5 µg/m^3 (operation)	
Sulfate 24-hour average	 1 µg/m^3	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm/23 milligrams per cubic meter (mg/m^3) (State) 9.0 ppm/10 mg/m^3 (State/Federal)	

Source: SCAQMD, 2009b

4.3.3 Applicant Proposed Measures

The Applicant proposes to implement air-quality related APMs to minimize air quality impacts associated with construction of the Proposed Project. The impact analysis assumes that the applicable APMs as listed below would be implemented during construction of the Proposed Project.

APM-AQ-1: Equipment engines shall be maintained in good condition and in proper tune as per manufacturers' specifications.

APM-AQ-2: Efficiently schedule staff and daily construction activities to minimize the use of unnecessary/duplicate equipment when possible.

APM-AQ-3: The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.

APM-AQ-4: Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.

APM-AQ-5: Signs shall be posted on the Plant Station along designated travel routes limiting traffic to 15 miles per hour or less.

APM-AQ-6: During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site.

APM-AQ-7: Paved road surfaces shall use vacuum sweeping and/or water flushing to remove buildup of loose material to control dust emissions from travel on paved access roads (including adjacent public streets impacted by construction activities) and paved parking areas.

4.3.4 Environmental Impact Analysis

The Proposed Project-generated construction and operational emissions were compared with the air quality significance thresholds established by the SCAQMD to determine if significant adverse impacts could occur. These screening thresholds assist in the implementation of the AQMP's goal of bringing the basin into compliance with Federal and State ambient air quality standards by identifying which projects would result in significant levels of air pollution. The annual GHG emissions during operation and construction are summed and compared to the interim CEQA GHG significance thresholds recently adopted by the SCAQMD for industrial projects. Once CARB approves statewide GHG thresholds, the SCAQMD thresholds may be revised. The Proposed Project emissions and their impact significance are discussed in detail below. Using preliminary construction schedule information, this analysis assumes that many project components will occur on concurrent schedules. It should be noted that as construction schedules are finalized, actual construction emissions are expected to be lower than presented in the following analysis.

Because overall air emissions from operations of the Plant Station are considerably reduced due to the Proposed Project, including toxic air pollutants (TAC) emissions, and the primary emissions increase is from short-term temporary construction activities, a health risk assessment for the Proposed Project was not conducted.

4.3.4.1 Criteria Pollutant Emissions

Proposed Project Construction

Emissions during the construction phase of the Proposed Project include emissions from vehicle and equipment exhaust and fugitive dust generated from material handling. The main pollutants emitted during construction include criteria pollutants such as CO, VOC, NO_x, SO_2, PM_{10}, and $PM_{2.5}$. Fugitive dust emissions from soil disturbance and material handling activities also contribute to PM_{10} and $PM_{2.5}$ emissions. Paving roads with asphalt during construction will also generate VOC emissions when the asphalt cures.

Decommissioning and demolition of the existing TDC's has not been included in this analysis. The TDC's must remain in place for at least one field cycle after the new compressors have been installed to verify operating consistency and reliability of the proposed Central Compressor Station and therefore would not occur concurrent to any construction associated with installation of the Proposed Project. Therefore, emissions associated with decommissioning and removal is not part of the Proposed Project analysis.

The air pollutant emissions during construction and operation of the Proposed Project were estimated based on the construction data provided in Chapter 3.0 Project Description. Emission factors for off-road equipment and on-road vehicles obtained from the SCAQMD web site (SCAQMD, 2009c) were used to estimate construction criteria pollutant emissions. Though the construction activities span from 2010 through 2012, emissions factors for calendar year 2010 were used as the 2010 emission factors are higher than the factors for the two later years. Fugitive PM_{10} and $PM_{2.5}$ emissions from material handling were calculated using emission factors from the USEPA's Compilation of Air Pollutant Emission Factors (USEPA, 2009). VOC emissions from asphaltic road paving were calculated using an emission factor from the URBEMIS 2007 User's Guide (Jones & Stokes, 2007). The Proponent proposes to pave all access roads within the construction zones; thus unpaved road fugitive dust emissions will not be generated during construction of the Proposed Project.

Daily emissions were calculated for each construction activity detailed in Chapter 3 Project Description. The proposed Central Compressor Station construction is tentatively scheduled to commence in third quarter of 2010 and to be completed by the fourth quarter of 2012. The proposed SCE Natural Substation construction and all sub-transmission line construction activities are scheduled to commence by the second quarter of 2010 and to end by the second quarter of 2012. The potential construction phases that could occur concurrently were identified based on this tentative schedule, and daily emissions from these concurrent activities were then combined in the following six scenarios. As construction schedules are finalized, actual construction emissions are expected to be lower than presented in the following analysis. Emissions would be lower as a result of a longer timeframe with less construction activities occurring on the same day.

Scenarios 1 through 6 represent worst-case daily scenarios based on the overlap of schedules during the Proposed Project.

- Scenario 1: SoCalGas' guard house and office trailer relocation, proposed SCE Natural Substation survey, marshalling yard preparation, right of way clearing, sub-transmission line survey, sub-transmission line roadway;

- Scenario 2: Proposed Central Compressor Station survey; SCE Natural Substation survey, sub-transmission line survey, sub-transmission line roadway, sub-transmission pole framing and setting, TSP footing installation, line assembly, line restoration;

- Scenario 3: Proposed Central Compressor Station site clearing and preparation; substation civil and fencing; sub-transmission guard structure installation, sub-transmission survey, roadway, pole framing and setting, TSP footing installation, line assembly;

- Scenario 4: Proposed Central Compressor Station civil; substation MEER, electrical, wiring, transformer installation, testing, maintenance, paving and landscaping; all sub-transmission line construction activities;

- Scenario 5: Proposed Central Compressor Station mechanical and electrical; substation MEER, electrical, wiring, transformer installation, testing, maintenance, paving and landscaping; all sub-transmission line, pole removal and installation construction activities;

- Scenario 6: Proposed Central Compressor Station paving, PPL installation, fencing and landscaping, sub-transmission guard structure removal, 66 kV reconductoring ; fiber optic/telecommunications installation.

The highest daily emissions for each pollutant among the six scenarios were then identified to determine the peak daily emissions of each pollutant. Daily construction emissions calculated for each scenario (combination of concurrent activities) and peak daily construction emissions are summarized in Table 4.3-5 and compared with the SCAQMD air quality significance thresholds for construction.

As can be seen from the table, unmitigated peak daily criteria pollutant emissions for all pollutants except NO_x are below the established SCAQMD CEQA significance thresholds for construction. Unmitigated peak daily NO_x emissions from the Proposed Project exceed the construction NO_x emissions significance threshold of 100 lbs/day. Detailed emission calculations are presented in Appendix B.1.

Table 4.3-5 Peak Daily Construction Emissions

Scenario[1]	VOC (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
1	43.00	78.35	490.11	10.80	24.88	8.82
2	69.31	129.30	492.42	5.09	46.65	17.03
3	68.42	174.60	425.98	3.62	28.87	12.52
4	70.34	197.48	492.96	4.99	36.97	15.84
5	73.55	226.98	454.30	3.77	30.80	15.47
6	38.59	58.14	192.86	1.98	14.85	4.86
Peak Daily	**73.55**	**226.98**	**492.96**	**10.80**	**46.65**	**17.03**

SCAQMD Threshold	75	550	100	150	150	55
Exceed Threshold?	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**

1 Emissions were calculated for the six scenarios discussed above. Each scenario includes a combination of construction activities that could occur concurrently during the two-year construction period.

The construction NOx emission will be mitigated by purchasing Regional Clean Air Incentive Market (RECLAIM) Trading Credits (RTCs) for every pound of NOx emissions in excess of the threshold. The total amount of NOx RTCs that will need to be purchased will be calculated when the construction schedule and operating conditions are finalized. With this mitigation for NOx emissions, mitigated emissions during the construction of the Proposed Project will not exceed any construction thresholds for criteria pollutants established by the SCAQMD and thus will not cause a significant impact. The Proponent will need to purchase and surrender the required RTCs to the SCAQMD prior to the start of construction. Additionally, the Proponent will also be required to track actual daily emissions during construction according to a mitigation monitoring plan, which will require maintaining records of equipment and vehicle usage.

Proposed Project Operation

Operational emissions associated with the Proposed Project would be comprised of mobile source exhaust and entrained road dust emissions from employee commuting for regular maintenance checks at the Proposed SCE Natural Substation. As described in Chapter 3 Project Description, the Proposed SCE Natural Substation will be unmanned and will have approximately three to four visits for maintenance every month. The proposed Central Compressor Station replaces the existing natural gas driven jet turbines with VFD compressors. Thus, the operation of the proposed Central Compressor Station will not include any on-site combustion sources. Further, the proposed Central Compressor Station site operation will not increase the existing on-site employee base; thus, no vehicular emission increases are anticipated. Table 4.3-6 presents the peak daily Proposed Project operational emissions.

Table 4.3-6 Peak Daily Operational Emissions

Source	Daily Mass Emissions[2]					
	Reactive Organic Gases (ROG)	**CO (lbs/day)**	**NO_X (lbs/day)**	**SO_X (lbs/day)**	**PM_{10} (lbs/day)**	**$PM_{2.5}$ (lbs/day)**
Emission Factor (lb/mile)[1]	9.140E-04	8.263E-03	9.181E-04	1.077E-05	8.698E-05	5.478E-05
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.31	0.00
Total	**0.22**	**1.98**	**0.22**	**0.00**	**0.33**	**0.01**

1 Emission factors in lb/mile from SCAQMD CEQA Air Quality Guidance Hand Book, Onroad EMFAC 2007 Emission Factors; PM10 and PM2.5 includes exhaust + tire + break wear emissions.

2 Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

The operation of the Proposed Project provides a benefit to air quality from the decommissioning of the jet turbines at the existing compressor site, as can be seen from the emission decreases presented in Table 4.3-7.

Table 4.3-7 Emissions Decrease from the Removal of the Existing Jet Turbines

Source	Average Daily Fuel Use (MMcf/day)[1]	Daily Mass Emissions (lbs/day)				
		ROG	CO	NO_x	PM_{10}	SO_x
Emission Factor (lb/MMcf)[2]		5.50	84.00	--	7.60	0.60
D-14	1.38	7.59	115.98	358.56	881.46	0.83
D-15	1.26	6.94	106.04	348.08	805.91	0.76
D-16	1.32	7.28	111.16	362.97	844.85	0.79
Total Jet Turbine Emissions		**(27.32)**	**(417.19)**	**(1069.61)**	**(2539.82)**	**(2.98)**

1 Average Daily Fuel Use calculated from Annual Actual Fuel Use from the Continual Emissions Monitoring Systems (CEMS) data for years 2007 and 2008. Average Annual Fuel Use for the two years was divided by 365 to calculate daily fuel use.

2 Emission factors in lb/MMcf from AP42 - Table 1.4-1 and Table 1.4-2 for all pollutants except NOx. NOx emissions are calculated from CEMS data during 2007 and 2008. Note* SoCalGas is required to source test for NOx, AP-42 factors used where source test data not available

Table 4.3-8 presents the net emissions changes during operation of the Proposed Project. Since operation of the Proposed Project will lead to a decrease in criteria pollutant emissions, emissions during operation will be less than the SCAQMD CEQA significance thresholds.

Table 4.3-8 Net Overall Change in Daily Operational Mass Emissions

Source	Daily Mass Emissions (lbs/day)					
	ROG	CO	NOx	SOx	PM10	PM2.5
Vehicle Emissions	0.22	1.98	0.22	0.00	0.33	0.01
Decrease from Removal of Turbines	(27.32)	(417.19)	(1069.61)	(2.98)	(37.75)	(37.75)
Net Total	**(27.10)**	**(415.20)**	**(1069.39)**	**(2.98)**	**(37.42)**	**(37.73)**
Significance Threshold	*55*	*550*	*55*	*150*	*150*	*55*
Significant? (Yes/No)	**No**	**No**	**No**	**No**	**No**	**No**

$PM_{2.5}$ emissions assumed equal to PM_{10} emissions for the jet turbines

4.3.4.2 Greenhouse Gas Emissions

GHG emissions during construction of the Proposed Project will be generated by construction equipment and motor vehicle fuel combustion. GHG emissions from construction equipment and mobile vehicle exhaust were calculated using off-road and on-road emission factors from the SCAQMD (SCAQMD, 2009c). GHG emissions during operation of the Proposed Project will be generated by employee commuting to the proposed SCE Natural Substation and the generation of electricity to power by the new motor driven compressors. GHG emissions from the generation of electricity used by the compressors was estimated using the maximum annual electricity usage by the three new compressors (16MW each at 8760 hours per year) and emission factors for electricity usage from the California Climate Action Registry (CCAR, 2009). GHG emissions during the Proposed Project operations will also include leakage of sulfur hexafluoride (SF_6), an insulating gas used in the new circuit breakers that will be installed at the substations. The Proposed Project will install seven new 66 kV circuit breakers and six 12 kV circuit breakers at the proposed SCE Natural Substation, and four new 66 kV circuit breakers at the existing San Fernando Substation. The total annual SF_6 emissions are estimated from the number of circuit breakers to be installed, the amount of SF_6 in each circuit breaker, and the anticipated leakage rate.

Table 4.3-9 presents the construction GHG emissions and the net operational GHG emissions, and compares the net GHG emission against the SCAQMD adopted interim significance threshold of 10,000 metric tons (MT) of carbon dioxide (CO_2) equivalent (CO_2e) per year. A project is considered to have an insignificant impact if the total annual GHG emissions from construction (amortized over 30 years) and operation are less than the interim significance thresholds. Net operational emissions include the decrease in GHG emissions from the removal of the existing natural gas jet turbines. As can be seen from the table, the sum of the total construction GHG emissions amortized over 30 years and the operational GHG emissions are below the adopted threshold. Detailed GHG emission calculations are provided in Appendix B.1.

Table 4.3-9 Greenhouse Gas Emissions Summary

Source	CO_2e
Construction	
Equipment Exhaust (MT)	4,518
Motor Vehicle Exhaust (MT)	1,663
Total Construction Emissions (MT)	***6,181***
Total Construction Emissions Amortized over 30 years (MT/year)	***206***
Operation	
SF_6 Leakage (MT/year)	54
Motor Vehicle Exhaust (MT/year)	4
Compressor Electricity Use (MT/year)	138,709
Potential GHG Emissions from Current Project (MT/year)	***138,766***
Jet Turbine D14 Operation (MT/year)	(69,789)
Jet Turbine D15 Operation (MT/year)	(69,789)
Jet Turbine D16 Operation (MT/year)	(69,789)
Decrease in GHG due to Removal of Turbines (MT/year)	***(209,368)***
Net Operational GHG Emissions (MT/year)	***(70,395)***
Total Project GHG Emissions (MT/year)	**(70,189)**
SCAQMD Interim Threshold (MT/year)	10,000

Table 4.3-9 Greenhouse Gas Emissions Summary

Source	CO_2e
Significant (Yes/No)?	**NO**

Note: GHG emissions from the new electric driven compressors and existing jet turbines are based on emissions reported in the Annual Emissions Report.

Voluntary Greenhouse Gas Measures

SCE voluntarily reports SF_6 gas emissions and has developed measures to monitor and prevent leakage. SCE currently tracks SF_6 gas leakage on a system-wide basis. SCE $SF_6$6 Gas Management Guidelines require proper documentation and control of SF_6 gas inventories, whether in equipment or in cylinders. Inventories are documented on both a quarterly and a yearly basis. SCE assumes that any SF_6 gas that is purchased and not used to fill new equipment is needed to replace SF_6 gas that has inadvertently leaked from equipment already in service. This allows SCE to track and manage SF6 gas emissions.

SCE currently voluntarily reports these emissions to the California Climate Action Registry, which was created by the California legislature to help companies track and reduce greenhouse gas emissions. SCE has taken proactive steps in the effort to minimize greenhouse gas emissions since 1997. In 1997, SCE established an SF_6 Gas Resource Team to address issues pertaining to the environmental impacts of SF_6. The team developed the Gas Management Guidelines that allow for rapid location and repair of equipment leaking SF_6 gas. In addition, in 2001, SCE's parent organization, Edison International, joined the US Environmental Protection Agency's voluntary SF_6 gas management program, committing SCE to join the national effort to minimize emissions of this greenhouse gas. Importantly, SCE's SF_6 emissions in 2006 were 41 percent less than in 1999, while the inventory of equipment containing SF_6 gas actually increased by 27percent during the same time period.

SCE has made a significant investment in not only improving its SF_6 gas management practices but also purchasing state-of-the-art gas handling equipment that minimizes SF_6 leakage. The new equipment has improved sealing designs that virtually eliminate possible sources of leakage. SCE has also addressed SF_6 leakage on older equipment by performing repairs and replacing antiquated equipment through its infrastructure replacement program.

It is expected that the Natural Substation SCE and the other substation modifications required as part of the Proposed Project involving circuit breaker replacement would result in minimal amount of SF_6 leakage as a result of the state-of-the-art equipment and SCE's SF_6 gas management practices. Pursuant to its existing practices, SCE would be reducing potential greenhouse gas impacts due to the SCE substation components of the Proposed Project to the greatest practicable.

4.3.4.3 Significance Evaluation

The potential impact to hazards from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential hazards resource impacts, CEQA criteria were evaluated and are discussed together for construction and operations.

<u>Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?</u>

The Proposed Project will be consistent with the SCAQMD 2007 AQMP and will not conflict with or obstruct implementation of the AQMP. The SCAB has a history of recorded air quality violations and is an area where both Federal and State ambient air quality standards are exceeded. Because of the violations of the CAAQS, the CCAA requires triennial preparation of an AQMP. The AQMP analyzes air quality on a regional level and identifies region-wide attenuation methods to achieve the air quality standards. The most recently adopted plan for the SCAB is the 2007 AQMP (SCAQMD, 2007). The purpose of the 2007 AQMP is to establish a comprehensive program to lead the region into compliance with Federal $PM_{2.5}$ air quality standards by 2015, and Federal 8-hour ozone standard by 2024, while making expeditious progress toward attainment of the State standards. The 2007 AQMP proposes potential attainment demonstration of the Federal $PM_{2.5}$ standard by 2015 through a more focused control of SO_x, directly-emitted $PM_{2.5}$, and NO_x supplemented with VOC emission reductions. The Federal 8-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional VOC reductions to meet the standard by 2024. The 2007 AQMP also outlines additional efforts through localized programs to ensure compliance with the now revoked Federal annual PM_{10} standard and also assist in the on-going compliance of the retained 24-hour PM_{10} standard. Currently, the SCAB meets the 24-hour average federal PM_{10} standard at all the monitoring stations and is expected to continue to meet the standard through 2015. However, the SCAB did not meet the now revoked PM_{10} annual standard at one monitoring station (Riverside-Rubidoux) in the Basin in 2006, the attainment target year for PM_{10}. The 2007 AQMP shows the Basin to be in compliance with Federal standards by 2024. However, the Basin will require additional time beyond 2024 to meet the State ozone, $PM_{2.5}$ and PM_{10} standards.

The 2007 AQMP contains measures based on current technology assessments. Because the AQMP is geared toward reducing long-term operational emissions and the Proposed Project will cause a net decrease in criteria pollutant emissions, the Proposed Project will help achieve and not conflict with or obstruct implementation of the applicable Air Quality Plan. Therefore this impact would be less than significant. No mitigation measures would be required.

<u>Would the Proposed Project Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</u>

The Proposed Project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The Proposed Project is located in a non-attainment area, an area that frequently exceeds national ambient air quality standards. To determine whether the Proposed Project would violate any air quality standards or contribute substantially to an existing or projected air quality violation, a worst-case scenario approach was taken to ensure that all potential air quality impacts are assessed. As such, emissions occurring during peak construction activities were quantified and used to determine air quality impacts as discussed in Section 4.3.5. In addition, a localized significance threshold analysis was also conducted to evaluate the potential localized impacts of the construction and operational activities. The localized significance threshold methodology requires an analysis regarding whether or not emissions of specified criteria pollutants would cause ambient air quality levels to exceed established thresholds at the nearest off-site receptor.

The peak daily construction and operational emissions are presented in Table 4.3-5 and Table 4.3-6, respectively. The comparison of the peak daily construction emissions with the SCAQMD significance thresholds show that all pollutant emissions are below the thresholds with the exception of NO_x. Thus, without mitigation the Project's NOx emissions will cause a significant adverse impact during construction.

Tables 4.3-10 and 4.3-11 present the LST values and the results of the LST analysis. The LST analysis was conducted for the Proposed Central Compressor Station and the proposed SCE Natural Substation individually to assess their impact on local air quality at nearby off-site receptors. Most of the proposed construction, including the proposed Central Compressor Station site and proposed SCE Natural Substation are away from residential or community zones, and thus a buffer zone exists for the residential population near the Proposed Project area. The nearest sensitive receptor is more than 900 meters to the south of the Proposed Central Compressor Station and the proposed SCE Natural Substation sites. Table 4.3-10, presents the allowable LST emissions, which represent the threshold for the amount of air pollutants that may potentially create localized significance air quality impacts. Based on a 2-acre area each for the proposed Central Compressor Station site and the proposed SCE Natural Substation site and the nearest receptor distance, and using the LST values the Proposed Project will not have a potential for adverse localized air quality impacts at nearby receptor locations (see Table 4.3-11).

Table 4.3-10 SCAQMD Localized Significance Threshold (LST) Values

	Allowable emissions (lb/day) as a function of receptor distance from Site Boundary									
Pollutant	**1 Acre**					**2 Acre**				
Receptor Distance (meters)	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**
CO	590	879	1294	2500	8174	877	1256	1787	3108	8933
NOx	106	107	124	161	254	152	148	160	190	271
PM_{10} Construction	4	12	25	51	131	6	19	32	59	139
PM_{10} Operation	1	3	6	13	32	2	5	8	15	34
$PM_{2.5}$ Construction	3	4	7	18	74	4	5	9	20	80
$PM_{2.5}$ Operation	1	1	2	5	18	1	2	2	5	20

Table 4.3-11 represents peak daily emissions from both construction and operation during the Proposed Project. Operation of the proposed Central Compressor Station will result in a net benefit in peak daily emissions, as represented in Table 4.3-11. Operation of the proposed SCE Natural Substation will result in minimal emissions due to vehicle emissions from workers travelling to and from the substation.

Table 4.3-11 LST Analysis for proposed Central Compressor Station and proposed SCE Natural Substation

	CO	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Compressor Site				
Peak Daily Construction Emissions	107.26	93.18	9.64	4.52
Peak Daily Operational Emissions	1.98	0.22	0.33	0.01
Substation Site				
Peak Daily Construction Emissions	32.40	47.35	15.64	4.52
Peak Daily Operational Emissions	0.00	0.00	0.00	0.00

Table 4.3-11 LST Analysis for proposed Central Compressor Station and proposed SCE Natural Substation

	CO	NOx	PM_{10}	$PM_{2.5}$
Localized Significance Threshold Values for Source Receptor Area 13				
NOx and CO LST (Construction & Operation)	***8933***	***271***	--	--
PM10 and PM2.5 LST (Construction)	--	--	***139***	***80***
PM10 and PM2.5 LST (Operation)	--	--	***34***	***20***
Compressor Site Significant Impact (Yes/No)?	**NO**	**NO**	**NO**	**NO**
Substation Site Significant Impact (Yes/No)?	**NO**	**NO**	**NO**	**NO**

Note: Analysis conducted for a 2-acre site and for receptor distance of 500m

The construction of the Proposed Project will have a significant adverse unmitigated NOx impact. However, the Proponent proposes to offset this NOx emissions increase by the purchase of RECLAIM for every pound of NOx emissions in excess of the threshold during construction. The total amount NOx RTCs that will need to be purchased will be calculated when the construction schedule and operating conditions are finalized. With this mitigation for NOx emissions, the construction of the Proposed Project will not exceed any CEQA significance thresholds for criteria pollutants established by the SCAQMD and thus, will be a less than significant impact. The Proponent will need to purchase and surrender the required RTCs to the SCAQMD prior to the start of construction. Additionally, the Proponent will also be required to track actual daily emissions during construction according to a Mitigation Monitoring Plan, which will require maintaining records of equipment and vehicle usage.

Further, the Proposed Project will also implement all feasible APMs to reduce construction-related air quality impacts. The implementation of measures AQ-1 through AQ-4 discussed earlier will help further reduce NOx impacts to levels considered less than significant. Though PM_{10} and $PM_{2.5}$ emissions during construction do not exceed the established standards, the Proponent will implement fugitive dust control measures as recommended by the SCAQMD (Rule 403 and CEQA fugitive dust mitigation measures) and as detailed by APMs AQ-5 through AQ-07 to further reduce the fugitive dust impacts. Thus, with mitigation the Proposed Project would not be expected to violate any air quality standard nor contribute substantially to an existing or projected air quality violation.

Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

Proposed Project construction and operations emissions will not result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is non-attainment. The SCAB is a non-attainment area for ozone, $PM_{2.5}$, and PM_{10}. Projects that contribute to a significant cumulative increase in ozone or ozone precursors NO_x and ROG, $PM_{2.5}$, or PM_{10} are considered to be significant and require the consideration of mitigation measures. As shown is Table 4.3-6, the Proposed Project will not exceed the significance thresholds for any pollutant during operation. However, during construction, the peak daily NO_x emissions exceed the significance thresholds for NO_x, thus causing a potential significant impact. However, with the implementation of APMs (AQ-1 through AQ-3) for NO_x and the purchase of

RTCs to offset NO_x emissions, the mitigated NO_x emissions would be reduced to levels below the significance thresholds.

The SCAQMD established the significance thresholds in consideration of cumulative air pollution in the SCAB. Thus, projects that do not exceed these thresholds do not significantly contribute to cumulative air quality impacts. Since the Proposed Project would not exceed the established thresholds (with mitigation for NO_x), it is anticipated that the Proposed Project will not contribute to a cumulatively considerable net increase of any criteria pollutants for which the Proposed Project region is non-attainment. With the implementation of Proposed Project mitigation measures and BMPs (AQ-1 through AQ-7), impacts to air quality will be less than significant.

Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations?

The Proposed Project will not cause expose sensitive receptors to substantial pollutant concentrations. The LST analysis discussed earlier (see Tables 4.3-10 and 4.3-11) shows that the Proposed Project construction and operation will not cause any significant impact to nearby receptors. Further, since construction emissions are temporary and generally occurring close to the Proposed Project and dispersing quickly, no significant impacts to public health are expected to occur from the construction of the project. Long-term operational emissions that can potentially have adverse health impacts on sensitive receptors are negligible because the only source of emissions would be from maintenance vehicle operations at the proposed SCE Natural Substation, approximately three or four times a month (Table 4.3-6).

The Proponent will implement feasible APMs to reduce construction related air quality impacts from NO_x and fugitive dust emissions. With the implementation of the proposed measures (AQ-1 through AQ-11), potential impacts to sensitive receptors would be expected to be less than significant during typical construction activities. Thus, impacts from construction and operation of the Proposed Project would be less than significant.

Would the Proposed Project create objectionable odors affecting a substantial number of people?

The Proposed Project will not cause objectionable odors. Construction and operation of the Proposed Project will not release any odorous substances. Some odors associated with the Proposed Project would result from construction equipment exhaust during construction activities, but these emissions would disperse very quickly in the open area. Given the short-term and temporary nature of construction activities, as well as the standard construction requirements imposed on the applicant, impacts associated with construction-generated odors would be less than significant. Thus, the Proposed Project will not create objectionable odors affecting a substantial number of people and is less than significant.

4.3.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact with mitigation** on air quality resources. Peak daily emissions of nitrogen oxides (NOX) were determined to have a potentially significant air quality impact that could be mitigated to below a level of significance by applying existing NOx allocations (credits) to offset emission increases due to short-term construction exceedances. The SCAQMD has successfully allowed the use of credits to offset temporary emission increase on a year-by-year basis for mitigation pursuant to CEQA. Therefore, to offset short-term potential of NOx emissions impacts from construction activities the following air quality mitigation measure is proposed:

AQ-MM-01: Prior to construction, the Proponent will mitigate construction emissions of NOx by purchasing Regional Clean Air Incentives Market (RECLAIM) Trading Credits (RTCs) for every pound of NOx emissions in excess of the construction threshold of 100 lbs/day. The Proponent will be required to track actual daily emissions during construction according to a mitigation monitoring plan, which will require maintaining records of equipment and vehicle usage.

No other mitigation measures are required. The Proposed Project will also implement all feasible APMs for NOx (AQ-1 through AQ-4) and fugitive dust (AQ-5 through AQ-7) during construction to lessen the air quality impacts. With the proposed mitigation, air quality impacts are determined to be less than significant.

4.3.6 References

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USEPA, 2009. The Green Book Nonattainment Areas for Criteria Pollutants. http://www.epa.gov/air/oaqps/greenbk/index.html

4.5 Cultural Resources and Paleontological Resources

This section describes cultural resources (historical and archaeological resources) and paleontological resources that may exist within the Proposed Project areas, and assesses whether any component of the Proposed Project might significantly impact, change, destroy or disturb these resources. The impacts and measures that reduce impacts are discussed, where applicable.

Proposed Project components that do not involve ground disturbance or the ground disturbance is restricted to the footprint of the existing facilities were not assessed. These include the proposed Central Compressor Station, the proposed office trailer and guard house relocation, the proposed PPL, and the proposed installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations. The components of the Proposed Project that could affect cultural resources includes the activities associated with the proposed SCE 66 kV sub-transmission modification originating at the Newhall Substation to the proposed SCE Natural Substation, construction of the proposed SCE Natural Substation, and the proposed modification at the San Fernando Substation where approximately four LSTs are scheduled to be replaced with engineered TSPs.

4.5.1 Existing Cultural Setting

The existing 66 kV sub-transmission corridor originates along the South Fork of the Santa Clara River and then runs south through Gavin and Weldon Canyons of the Newhall Pass between the San Gabriel and Santa Susana Mountains before it turns west and terminates in Aliso Canyon. The 66 kV sub-transmission system crosses through Section 4, Township 3 North, Range 16 West of the Newhall, California, USGS 7.5 minute topographic quadrangle, and Sections 4, 10, 13, 14, 15, 22, 23, 26, 33, and 34, and an unsectioned portion within the Los Angeles City boundary of Township 3 North, Range 16 West of the Oat Mountain, California, USGS 7.5 minute topographic quadrangle. Elevations run from 1,260 feet above MSL in the north to close to 2,700 feet above MSL at Mission Point in the south.

The proposed pole replacements associated with the San Fernando Substation are located at the north end of the San Fernando Valley between the Golden State Freeway (I-5), the San Diego Freeway (I-405), and the Ronald Reagan Freeway (State Route 118) in the city of Los Angeles. They are located in an unsectioned portion of Township 2 North and Range 15 West on the San Fernando, California, USGS 7.5 minute topographic quadrangle. Elevation is roughly 980 feet above MSL.

The proposed SCE 66 kV sub-transmission modification lies in an area where the topography varies from flat and residential in the north to steep and rugged in the south. The proposed SCE 66 kV sub-transmission modification will re-conductor segments of two existing source lines in which most poles are located on the tops of ridges and hills. Vegetation is characterized as a mix of Coastal Sage Scrub and Oak Woodland communities (Munz 1974). A few remnant stands of Big Cone Spruce can be found in the Santa Susana Mountains just north of the existing alignment. Animals found in the vicinity of the Proposed Project area include mountain lions (*Felis concolor*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), and a host of other smaller mammals including raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), jack rabbit (*Lepus californicus*), and ground squirrel (*Spermophilus beecheyi*). Bird species present in the area include hawks, ravens, and flycatchers. The area surrounding the San Fernando

Substation is a highly developed urban environment. Indigenous flora and fauna have been displaced by landscaping and pavement.

A cultural resources survey of the Proposed Project area was conducted on April 23 and 26, 2009. The survey identified archaeological and historical resources within the Proposed Project area for use in determining whether the Proposed Project's effects on historic properties are in compliance with CEQA. The survey consisted of a records search and a pedestrian survey of the existing SCE 66 kV sub-transmission alignment.

4.5.1.1 Historical Periods

Early Period

Archaeologists in southern California have divided prehistory into three broad periods – the Early, Middle, and Late periods (Altschul et al., 1998; Altschul and Grenda, 2002). Early period (ca. 7000–3200 B.P.) sites appear to be adapted to wetland environments with readily abundant resources. These early groups emphasized hunting, with a flaked stone industry that included large flake and core scrapers, choppers, hammer stones, drills, and gravers (Kowta, 1969; Warren, 1968). Percussion- and pressure-flaked tools are common, as well. Ground stone is typically absent from these early deposits but present in later ones, which may reflect adaptation to changing environments through time. Milling stones that characterized this period are best suited for grinding hard seeds produced by grasses, sages, and other small, annual plants, which by nature are highly dependable and abundant food sources.

Middle Period

During the Middle period (3000–900 B.P.), inhabitants of the region had a land- and marine-based economy, focusing on large sea mammals, fish, and mollusks, as well as some terrestrial resources. One of the markers of the Middle period in the archaeological record is the increase in frequency of mortars and pestles, replacing the milling stones that dominated the Early period record. This shift most likely relates to the shift in reliance from primarily seeds to fruits and nuts (Gamble and King 1997). Settlement patterns during this period represent greater residential stability, as evidenced by the increased use of storage pits. The advent of well-defined cemeteries and larger settlements of people within the bight during the Middle period lends further evidence to increased sedentism.

Late Period

Research on the Late period (900–200 B.P.) has suggested that there was continuation of trends from the Middle period: settlement size grew, new regions and environments were occupied, and functionally specialized sites continued to appear (Leonard, 1971). As well, there was an increase in terrestrial hunting and maritime adaptations that coincided with a decrease in the importance of vegetal resources. These trends are evidenced by a lessening in the importance of milling stones, with a corresponding increase in the use of flaked lithic tools, such as projectile points, scrapers, and drills.

There appears to have been some differentiation between coastal and inland sites during the Late period. Generally, settlements appear to have been more specialized and differentiated as they related to specific environments, leading to more-restricted locations. Whereas sites along the mainland coast might have decreased numbers from the previous period, those that remained increased in overall size.

Ethnohistory

The Proposed Project is situated within the traditional territory of both the Chumash and Gabrielino cultures. The Chumash were predominantly a coastal people but they made use of inland resources (Kroeber 1976, :550; Glassow, 1996). The Gabrielino occupied an area with a complex topography, ranging from the high peaks of the San Gabriel Mountains to the Pacific Coast and islands offshore (Bean and Smith, 1978; McCawley, 1996). Both groups were hunters and gatherers who sought large and small game, as well as numerous plant resources for food. The ethnohistoric settlement pattern consisted of permanent villages located in proximity to reliable sources of water, and within range of a variety of floral and faunal food resources, which were exploited from temporary camp locations surrounding the main village.

First contact between Native Americans in California and Europeans took place more than 450 years ago when, in 1542, Cabrillo sailed into the Santa Barbara Channel to map the coastline. Following Cabrillo's arrival, there were few encounters between Native Americans and Europeans for over two centuries. It was not until Spanish Franciscans were given charge of the frontier that missions were established and the Native American culture was assimilated into Spanish colonial culture. During the Mission period, Native Americans were forced to relocate, effectively abandoning their villages and resource territories; some groups retreated to the interior rather than succumb to the demands of resettlement.

The Mexican period, which followed the Mission period, is marked by Mexico's independence from Spain in 1821. It lasted until 1848 when the Mexican-American War ended with the signing of the Treaty of Guadalupe Hidalgo and the lands of Alta California were passed into American hands. During this period, the old Spanish mission system was dismantled by the mid-1830s, with their land holdings divided among the most-prominent citizens in the territory and ceded as land grants, or "ranchos." The Native Americans within the missions were left on their own; a few retreated to the interior, but many remained to work on the newly designated ranchos. The subsequent American Period saw an influx of settlers into the region and the demise of the old ranch way of life. Agriculture was taking hold and industry and rail lines rapidly developed.

4.5.1.2 Archaeological Records Search

Storage Field and Sub-transmission

An archaeological records search was conducted at the South Central Coastal Information Center, California State University, Fullerton. Forty-eight cultural resources studies have been conducted within a ½-mile radius of the proposed SCE 66 kV sub-transmission modification (Table 4.5-1). Eleven of these studies included portions of the Proposed Project area including a nearly 2-mile length segment through the Newhall Pass. Another survey for the Sunshine Canyon Landfill Extension project (Minch and Stickel, 1999) recorded the only archaeological site within the Proposed Project (CA-LAN-2484).

CA-LAN-2484 was investigated by E. Gary Stickel of John Minch and Associates (1999). The site consists of 1 large metate fragment and 16 smaller pieces of the same metate scattered within and collected from nineteen 1 by 1 meter units excavated across the site. All of the artifacts were found in the top 10 centimeters. No evidence of this site or the excavation units was seen during the current survey of the Proposed Project area. The Sunshine Canyon Landfill Extension project also recorded 3 additional archaeological sites and 5 isolates within a ½-mile radius of the 66 kV sub-transmission system. These are a small processing site with mano scatter and fire-affected rock (CA-LAN-2369), a site with a mano and historical period sherds (CA-LAN-2370), a lithic and ground stone scatter (CA-LAN-2529), 3 isolated mano fragments (19-100186, 19-100187 and 19-100190), 1 whole mano (19-100188), and 1 chalcedony flake (19-100189).

Several other sites were recorded by previous surveys within the record search area but outside the current Proposed Project boundaries. These include a small hunting station (19-000802) recorded by Clay A. Singer (1977), a small temporary camp (19-000816/H) found by C. William Clewlow, Jr. (1978), Beale's Cut, a man-made notch (19-002069/H) recorded by William Hayden (1992) and the Cuesta Viejo Trail (19-002148/H) recorded by R. Sheets and A. Cole (1993).

San Fernando Substation

In July 2009 a second detailed records search for previously recorded historic properties within a ½-mile radius of the San Fernando Substation was conducted. The records search revealed four (4) previously recorded sites and one (1) California Historic Landmark, without a site designation, within one-half mile of the San Fernando Substation. One of these historic properties, archaeological site CA-LAN-169 H, encompasses the proposed work site. The boundary of site CA-LAN-169 H is defined by the structures of the Mission San Fernando located north of San Fernando Mission Boulevard between the Golden State (5), San Diego (215), and Ronald Reagan (118) Freeways.

According to prior work in the area (Foster 2004, 2005; Greenwood and Foster 1984), the Mission once included all of the land between the three freeways, as well as many more built features including garden walls and outbuildings arrayed along the current San Fernando Mission Boulevard. Portions of those built features may be preserved in the area surrounding site CA-LAN-169 H under current construction.

One other site included here, CA-LAN-2760 H, was located just north of the one-half mile search boundary, and is associated with the early 20th century activities of the San Fernando Mission Land Company.

I. Archaeological Sites

Site Number [CA-]	Other Number(s)	Date Recorded	Recorded By	Description
LAN-169 H*	19-167231	1950	Arnold Pilling	Mission San Fernando Rey de España (founded 1797). Only the "convento" structure is listed in the NRHP.
	CHL-157	1959	UCLA Archaeological Survey	
	NRHP-88002147	1970&1988		

LAN-960 H	19-150411 4-LAN-H37	1Jul1978	Bob Edberg UCLA Archaeological Survey	Mission San Fernando Dam (same as 19-150411, inaccurately mapped at SCCIC)
LAN-2006 H	19-180721 CHL-362 NRHP-66000211	Nov1991 24Mar1972	Albert Knight	Andres Pico Adobe (Ranchito Romulo) – Home of Dr. M. R. Harrington, San Fernando Valley Historical Society HQ
LAN-2760 H	none	21Oct1998	Dana Slawson Greenwood & Associates	*(N of search radius)* Mission reservoir and weir box (1905-1914)
LAN-3182 H	none	15Apr2004	John M. Foster	Cobble/boulder foundation, possibly associated with the Mission (inaccurately mapped at SCCIC, should be to the east and within LA-10003/4 project boundary)
Note: * within project boundary.				

II. Historic Structures, Landmarks, and Places

Permanent Number	Other Number(s)	Date Recorded	Recorded By	Description
19-150411	4-LAN-H37 LAN-960 H	30Jun1978	Bob Edberg UCLA Archaeological Survey	Mission San Fernando Dam (same as LAN-960, inaccurately mapped at SCCIC)
19-186558	CHL-150			Brand Park Memory Garden *[Site record missing at SCCIC]*

Sixteen cultural resources reports are on file at the SCCIC within one half mile of the San Fernando Substation. Of these, Report Numbers LA-1381, LA-1590, LA-4499, LA-6997, LA-10003, and LA-10004 produced by Greenwood and Associates (Foster 2002, 2004, 2005; Greenwood and Foster 1984; Slawson 1998; Toren et al. 1986) contain the most useful information about Mission San Fernando and the immediate project area. Specifically, the Foster 2004 and 2005, and Toren et al. 1986 reports are the only reports that document subsurface testing in the area directly adjacent to the project area. The materials and structure remnants found in those locations hint at the possible buried features in and around the Mission San Fernando (CA-LAN-169 H) site.

III. Research Reports

Report Number	Resources Involved	Date of Report	Author & Company	Title
LA-1151	none	28Apr1982	Dennis J. Lowry Engineering Technology, Inc.	*An Archaeological Resource Survey and Impact Report Assessment of a 9-Acre Parcel, Eastern Holy Cross Property, Los Angeles County, California*
LA-1381	LAN-169 H	10Aug1984	Roberta S. Greenwood & John M. Foster Greenwood & Associates	*Cultural Resource Investigation of Ex-Mission Property, 14937 San Fernando Mission Boulevard, Los Angeles County*
LA-1432	none (should have found LAN-2760 H)	14Jan1985	Susan Colby & Paul Farnsworth UCLA Archaeological Survey	*An Archaeological Resource Survey and Impact Assessment of Northern Parcels of Holy Cross Hospital Property, Mission Hills, Los Angeles County, CA*
LA-1464	none	11Jul1985	Susan Colby UCLA Archaeological Survey	*An Archaeological Resource Survey and Impact Assessment of a 10+ Acre Parcel at 10105 Mission Hills Road, Los Angeles County, CA*
LA-1590	LAN-169 H	8Aug1986	George A. Toren, Roberta S. Greenwood, & John M. Foster Greenwood & Associates	*Archaeological Investigations at 14937 San Fernando Mission Boulevard (CA-LAN-169A), Los Angeles, California*
LA-1981	LAN-2006 H	7Nov1972	Alan Garfinkel	*The Andres Pico Adobe: A Research Proposal (student paper for Anthro 476A)*
LA-2488	LAN-2006 H	Oct1991	Albert Knight	*The Andres Pico Adobe: A Partial Survey Including a Records Search and A Site Revisit/Assessment*
LA-3009	LAN-2006 H LAN-169 H	Mar1994	Albert Knight Western Mojave Survey Association	*Damages to and Losses of Cultural Resources in Los Angeles County, California During the Riots, Fire Storms, and Earthquakes of 1992-1994*
LA-3670	none	Jan1997	Barbie Stevenson	*Cultural Resources Monitoring for the*

Report Number	Resources Involved	Date of Report	Author & Company	Title
			Getchell & John E. Atwood Pacific Archaeological Sciences Team (PAST)	*Stranwood Avenue to Sepulveda Boulevard Drain Project Located in the Community of Mission Hills, Los Angeles County, California*
LA-4077	found LAN-2760 H, did not create site record	18Jun1998	Brian D. Dillon	*Archaeological and Historical Survey and Impact Assessment of Tract 52539, A +/-30 Acre Parcel in the Mission Hills Community of Los Angeles, California*
LA-4107	none in search area	10Jan1991	Andrew L. York & Gene P. Davis Dames & Moore	*B1R Route Variation Supplement to Mobil M-70 Pipeline Replacement Project, Cultural Resources Survey Report*
LA-4499	LAN-2760 H	Oct1998	Dana N. Slawson Greenwood & Associates	*Historical Resource Investigation for Health Structures Tract 52539*
LA-6997	none LAN-3182 H under pavement, not found	13Jun2002	John M. Foster Greenwood & Associates	*Archaeological Investigation for Northeast Valley Animal Shelter (Stranwood), Task ID No. NEV002, City of Los Angeles, California*
LA-7903	none	15Oct2006	Robert J. Wlodarski Cellular Archaeological Resource Evaluations (CARE)	*Record Search and Field Reconnaissance for the Proposed Royal Street Communications Site LA0042A, Mission Hills, California*
LA-10003	LAN-3182 H	Apr2004	John M. Foster Greenwood & Associates	*An Extended Phase I Archaeological Program, Northeast Valley Animal Shelter, Mission Hills, California*
LA-10004	LAN-3182 H	Sep2005	John M. Foster Greenwood & Associates	*Archaeological Monitoring Program, Northeast Valley Animal Shelter, Mission Hills, California*

Note: * numbered sites and historic properties within the records search perimeter.

Historical Maps

The SCCIC maintains a collection of historical USGS and plat maps dating back to the 19th century, and covering much of Los Angeles and Orange Counties. For the Proposed Project area, the SCCIC holds four relevant historical maps.

In all of these early 20th century maps, the Mission San Fernando is shown in the same location as present, although the 1:62,500 San Fernando maps from 1924 and 1929 show more small buildings to the west of the current structures. Through time, most of the structures identified as "Mission San Fernando" are mapped along the north side of what is now San Fernando Mission Boulevard. One possible Mission structure is located south of the boulevard and west of the main complex on the San Fernando 1924 and 1929 maps.

In all of the maps, the Mission complex contains several small square structures and one or two long east-west oriented structures. Only in later maps, from the 1960s forward, is the Mission San Fernando shown with a central north-south oriented structure, as today. The easternmost of the long east-west buildings in these early maps is probably the Mission San Fernando Rey de España *Convento* building which is listed in the National Register of Historic Places as NR# 88002147. The Convento is the only surviving, largely intact structure from the original Spanish-era Mission complex.

Additionally, in all of the historical maps, the San Fernando Reservoir northwest of the project area is essentially unchanged and very similar to the configuration of the current dam and reservoir.

4.5.1.3 Pedestrian Survey

An archaeological survey was conducted on April 23 and 26, 2009 of the Proposed Project area, which was defined as a 30-meter radius around each existing tower or structure. Existing maintenance roads adjacent to all towers, and approximate locations for equipment staging during construction and operation were surveyed. No new roads or spurs are currently planned. Pull and tension sites have yet to be identified and additional survey may be required if they fall outside of current survey limits.

Each tower area and access road was subjected to systematic surface inspection; transects were walked at 10 meter intervals or less to ensure that all surface-exposed artifacts and sites within the Proposed Project area would be identified. Ground visibility varied from excellent in recently burned areas to poor in most cases where vegetation or ground cover was dense. The area around most of the towers has been previously disturbed. Photographs were taken of the survey areas for reference.

No archaeological materials were observed or collected in the Proposed Project area.

4.5.1.4 Regulatory Framework

Proposed Project effects on historic properties were assessed in compliance with the (CEQA; Public Resources Code § 21000 et seq.) and the CEQA Guidelines (California Code of Regulations § 15000 et seq.), as amended to date. For potential effects on archaeological or historical resources to be considered significant under CEQA, the resources in question must be listed in or determined to be eligible for listing in the California Register of Historic Resources (CRHR), be included in a local register of historical resources, or be determined by the lead agency to be a historical resource.

If human remains are encountered during construction or any other phase of development, work in the area of the discovery must be halted in that area and directed away from the discovery. No further disturbance would occur until the County Coroner makes the necessary findings as to origin pursuant to Public Resources Code 5097.98-99, Health and Safety Code 7050.5. If the remains are determined to be Native American, then the Native American Heritage Commission (NAHC) would be notified within 24 hours as required by Public Resources Code 5097.

Table 4.5-1 Cultural Resource Studies Conducted Within a ½-Mile Radius of the Proposed 66 kV Sub-Transmission System

SCCIC Reference	Author	Title	Resources
LA-00023	Leonard, Nelson N III	Archaeological Reconnaissance of Tentative Tract # 31399, a Residential Development Near Newhall, California	
LA-00103	Singer, Clay A.	Archaeological Resource Survey of Portions of the South Fork, Santa Clara River, Los Angeles County, California	
LA-00290	Desautels, Roger J.	Archaeological Survey Report on Acre Parcel of Land Located In the Newhall Area of the County of Los Angeles, California	
LA-00493	Singer, Clay A.	Cultural Resource Survey and Impact Assessment for a 330+ Acre Parcel in the Granada Hills Area, County of Los Angeles	
LA-00578	Baksh, Michael G.	Archaeological Evaluation of Tentative Tract # 35555 Los Angeles County, California	
LA-00776	McIntyre, Michael J.	Cultural Resource Reconnaissance and Assessment of a Pipeline No. 1192, Chatsworth, Los Angeles County, California	
LA-00842	Singer, Clay A.	Archaeological Survey and Cultural Resource Assessment for a Portion of Towsley Canyon, Near Newhall, Los Angeles County, California	19-000802
LA-01044	McIntyre, Michael J.	Assessment of the Impact Upon Cultural Resources by the Proposed Development of O'Melveny (Bee Canyon) Park. Granada Hills, Los Angeles County, California	19-000672
LA-01045	Toren, George	Assessment of the Archaeological Impact of the Weldon Hills Plant, Los Angeles County, California	
LA-01052	Schilz, Alan J.	Archaeological Survey of the Sylmar Development Project Site, Los Angeles County, California	

Table 4.5-1 Cultural Resource Studies Conducted Within a ½-Mile Radius of the Proposed 66 kV Sub-Transmission System

SCCIC Reference	Author	Title	Resources
LA-01730	Clewlow, William C. Jr.	Archaeological Report Status of LAN-816 in Sunshine Canyon, Los Angeles County, California	19-000816
LA-01978	Salls, Roy A.	Report of Archaeological Reconnaissance Survey of Santa Clarita, California-Newhall Carrier Annex Environmental Assessment. ESA Project Number 9094c, Newhall, California	
LA-02141	Singer, Clay A. and Atwood, John E.	Cultural Resources Survey and Impact Assessment for Three Debris Basins North of Cagney Ranch [TT 48906 and TT 489131 In Granada Hills, Los Angeles County, California	
LA-02231	Chartkoff, Joseph and Chartkoff, Kerry	University of California Los Angeles - Archaeological Survey Field Project Number UCAS-081-B Highway Construction Survey VII-LA-5-p m 43 4-45 6, City of Los Angeles, California	
LA-02305	Moratto, Michael J.	Cultural and Paleontologic Resources In the Santa Susana and Santa Monica Mountains, Los Angeles County, California	19-000802, 19-001592, 19-001593, 19-001594, 19-001598, 56-001011
LA-02522	Robinson, R. W.	A Cultural Resources Investigation of Tentative Parcel Map 22696. Fifty-Six Acres Located In the Vicinity of Newhall, Los Angeles County, California	
LA-02608	White, Laura S.	An Archaeological Assessment of a ± 25-Acre Portion of the BFI Waste Management Facility Located at 14747 San Fernando Road in Sylmar, Los Angeles County, California	19-000816
LA-02648	Macko, Michael E.	Results of a Phase I Archaeological Resource Literature Review Field Survey for Project No. E6000223. Street Widening in Granada Hills Area Near Shoshone Avenue and Rinaldi, City of Los Angeles, California	
LA-02950	Anonymous	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	

Table 4.5-1 Cultural Resource Studies Conducted Within a ½-Mile Radius of the Proposed 66 kV Sub-Transmission System

SCCIC Reference	Author	Title	Resources
LA-03000	Simon, Joseph M. and Whitley, David S.	Phase I Archaeological Survey and Cultural Resources Assessment for the 225 Acres Alternative Site 2	
LA-03289	Dam, Gene	Mobil M-70 Pipeline Replacement Project Cultural Resource Survey Report for Mobil Corporation	19-000034, 19-000059, 19-000060, 19-000067, 19-000077, 19-000095, 19-000169, 19-000194, 19-000213, 19-000216, 19-000248, 19-000408, 19-000409, 19-000410, 19-000411, 19-000412, 19-000441, 19-000444, 19-000475, 19-000490, 19-000491, 19-000492, 19-000493, 19-000634, 19-000643, 19-000644, 19-000645, 19-000646, 19-000823, 19-000903, 19-000925, 19-000926, 19-000927, 19-000938, 19-000960, 19-000962, 19-000990, 19-000991, 19-000992, 19-001015, 19-001305, 19-001834, 19-001835
LA-04001	Demcak, Carol R.	Report of Archaeological Survey for L.A. Cellular Site #554.1, 22444U N., The Old Road, Newhall, Los Angeles County, California	
LA-04008	Unknown	Cultural Resources Investigation Pacific Pipeline Emidio Route	

Table 4.5-1 Cultural Resource Studies Conducted Within a ½-Mile Radius of the Proposed 66 kV Sub-Transmission System

SCCIC Reference	Author	Title	Resources
LA-04059	Iverson, Gary	Negative Archaeological Survey Report 07- LAN -14 - 24 8/27/03 - 07 - 11984k - 07234	
LA-04484	Minch, John and Stickel, E. Gary	Report of the Monitoring Program, Paleontological and Archaeological Monitoring, Sunshine Canyon Landfill Extension, County of Los Angeles, California	19-002369, 19-002370, 19-002484, 19-002529, 19-100186, 19-100188, 19-100189, 19-100190
LA-04828	Stickel, E. Gary	Cultural Resources Investigation Report of Two Loci (SC-3 and SC-9) In the Sunshine Canyon Landfill Extension Project JMA Project No. BFI-94-164 Area, Los Angeles County, California	19-000816, 19-002370
LA-04829	Stickel, E. Gary	An Archaeological Site (SC-16) Investigation Report In the Sunshine Canyon Landfill Extension Project Area JMA Project # BFI-94-164, Los Angeles County, California	19-002529
LA-04830	Stickel, E. Gary	Cultural Resources Investigation Report of One Locus (SC-12) In the Sunshine Canyon Landfill Extension Project Area JMA Project # BFI-94-164, Los Angeles County, California	19-002484
LA-05144	Iverson, Gary	Negative Archaeological Survey Report 16800K	
LA-05145	Stickel, E. Gary	Cultural Resources Investigation Report of Five Loci (SC-10, -11, -13, -14, -15) in the Sunshine Canyon Landfill Extension Project Area JMA Project No. BFI-94-164, Los Angeles County, California	19-100186, 19-100187, 19-100188, 19-100189, 19-100190
LA-05146	Minch, John	Report on the Monitoring Program, Paleontological and Archaeological Monitoring, Sunshine Canyon Landfill Extension, Los Angeles, County, California	19-002369, 19-002370, 19-002484, 19-002529, 19-100186, 19-100187, 19-100188, 19-100189, 19-100190

Table 4.5-1 Cultural Resource Studies Conducted Within a ½-Mile Radius of the Proposed 66 kV Sub-Transmission System

SCCIC Reference	Author	Title	Resources
LA-05147	Stickel, E. Gary	A Site Survey for Cultural Resources for the City of Los Angeles Extension Phase of the Sunshine Canyon Landfill Project, Los Angeles County, California	19-000816
LA-05148	Stickel, E. Gary	A Preliminary Investigation of an Off-site Ridgecrest Archaeological Site (SC-1) for the Sunshine Canyon Landfill Extension Project Area, Los Angeles County, California	19-002369
LA-05533	Smith, Philomene C.	Negative Archaeological Report: Rock-lined Section and the Addition of an Access to Paved Section of Drainage Channel Near Interstate 5 in Santa Clarita, California	
LA-05534	Morrison, Andrea Sue	Historic Property Report and Finding of "no Effect": Interstate 51 State Route 14 Interchange Near the City of Santa Clarita. Los Angeles County, California	
LA-05855	Anonymous	Phase I Archaeological Survey of the 558 Acres Old Road Study Area, Los Angeles County, California	
LA-08255	Arrington, Cindy and Sikes, Nancy	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes 1 and 11	
LA-08805	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for Global Signal Candidate 3019347 (Old Road), 22400 The Old Road, Newhall, Los Angeles County, California	
LA-08913	Billat, Lorna	Old Road / LA-2080a. Cellular Antennas on Existing Monopole. 22400 The Old Road, Near Newhall, Los Angeles County, California 91321	
LA-08958	Tsunoda, Koji and A. Moreno	Archaeological Survey Report for Southern California Edison Company Saugus-north Oaks For Cable Project Los Angeles County, California (WO#8456-0639. JO#6155)	19-002105, 19-002132, 19-002898

Table 4.5-1 Cultural Resource Studies Conducted Within a ½-Mile Radius of the Proposed 66 kV Sub-Transmission System

SCCIC Reference	Author	Title	Resources
LA-09063	Schmidt, June A.	Negative Archaeological Survey Report Church of the Nazarene (C.U.P. No 03-090) 23857 The Old Road, Santa Clarita, Los Angeles County, California	
LA-09066	Shepard, Richard S.	Phase I Cultural Resource Assessment for Lyons Canyon Ranch Specific Plan, Tentative Tract Map 53653 Santa Clarita, Los Angeles County, California	
LA-09069	Stickel, E. Gary	Cultural Resources Investigation Report of Four Loci (SC-4, SC-5, SC-7, SC-8) in the Sunshine Canyon Landfill Extension Project Area, Los Angeles County, California	
LA-09072	Stickel, E. Gary	A Phase II Cultural Site Survey for the Sunshine Canyon Landfill Extension, Los Angeles County, California	
LA-09073	Stickel, E. Gary	A Cultural Resources Investigation of Site Locus SC-18 Located Within the City of Los Angeles Phase Area of the Sunshine Canyon Landfill Extension Project, Los Angeles County, California	
LA-09074	Stickel, E. Gary	A Cultural Resources Investigation of Site Locus SC-17 Located Within the City of Los Angeles Phase Area of the Sunshine Canyon Landfill Extension Project, Los Angeles County, California	
LA-09075	Stickel, E. Gary	An Archaeological Site (SC-18) Investigation Report in the Sunshine Canyon Landfill Extension Project Area, Los Angeles County, California	
LA-09447	Billat, Lorna	Oaktree Gun Club LA-20816, Newhall, California	

4.5.1.5 Paleontological Resources

Los Angeles County is home to numerous fossil localities, extending from plant finds to invertebrates, mammals and reptilian (including dinosaur) finds ranging in age from Cretaceous to Pleistocene. Locally, the Proposed Project has not been identified as a source of numerous Cretaceous and Tertiary vertebrate discoveries. Based on an internet search of the University of California-Berkeley, Museum of Paleontology (UCMP) fossil index (http://ucmpdb.berkeley.edu/), 12 vertebrate fossil specimens are listed within the Los Angeles County area. The Proposed Project site is located within several miles of these fossil localities, and no fossil finds within the alluvium or Towsley Formation were recorded within the UCMP paleontological database. The potential for the presence of articulated skeletons or undisturbed fossils within these geological units is low. Even though the Proposed Project is not located within a highly sensitive paleontological area, proper care should be followed during earthwork to avoid damaging or destroying unknown resources.

According to the Paleontological and Archaeological Monitoring Report of the Sunshine Canyon Landfill Extension, prepared by Minch and Associates, Inc, (March 1999), 81 fossil localities were identified in the Landfill during the earth disturbing construction activities and 748 fossils were collected or observed. All localities established were located within the Towsley Formation of Upper Miocene to Lower Pliocene age which is a tan to light gray sandstone with some pebbles, interbedded with brown mudstone and silty claystone deposited in deep water by turbidity currents which has produced significant marine invertebrate and vertebrate fossils. The marine invertebrates previously collected in the Towsley Formation include bryozoa, pelecypods, gastropods, arthropods and echinoderms; marine vertebrates previously collected include sharks, whales, sea lions, and sea cows (Minch and Associates, 1999).

The alignment of the 66 kV sub-transmission system immediately west of Interstate 5 crosses the Sunshine Canyon Landfill located approximately several hundred feet west of the Chatsworth Tap Tower. Fossil locals may be encountered during excavation work along the segment between the Chatsworth Tap and the Newhall Substation. Since the Towsley Formation is not present in the Storage Field or in the proposed SCE Natural Substation location, the occurrence of fossils specimens in these areas are considered low. In the event that the presence of fossil localities are discovered during excavation or earthwork, proper care should be followed during earthwork to avoid damaging or destroying unknown resources.

4.5.1.6 Unique Geologic Features

According to Appendix G, Section V of CEQA, lead agencies are required to consider impacts to unique geologic features. The CEQA Guidelines are concerned with assessing impacts associated with the loss of unique geologic features that are of value to the region or state.

Geologic formations, their structure and the fossils preserved in them provide information about past environments. Unique geologic features are considered bedrock formations or geomorphic features of unusual scientific or aesthetic value, including fossil localities or “type sections” (i.e., locations defining the characteristics of a formation), that preserve with great detail the record of important past environments, or that are deemed of high value to academic or research interests are considered. Some features stand out as being unique in one way or another within the boundaries of the County. A geologic unit or feature is unique if it:

- Is the best example of its kind locally or regionally;
- Embodies the distinctive characteristics of a geologic principle that is exclusive locally or regionally;
- Provides a key piece of geologic information important in geology or geologic history;
- Is a “type locality” of a geologic feature;
- Is a geologic formation that is exclusive locally or regionally;
- Contains a mineral that is not known to occur elsewhere in the County; or
- Is used repeatedly as a teaching tool.

Based on this study, no unique paleontological resource or site or unique geologic features are known to occur at the Proposed Project site, including at the existing Plant Station, the proposed Central Compressor Station site, proposed SCE Natural Substation, and the alignment of the proposed SCE 66 kV sub-transmission modification.

4.5.2 Significance Criteria

Using the criteria for listing on the CRHR, the lead agency shall consider a resource to be historically significant if the resource:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history [CEQA Guidelines § 15064.5(a)(3)].

The term “historical resource” may apply to archaeological sites, also. However, for an archaeological site that does not meet the criteria for consideration as a “historical resource,” a determination must be made as to whether it qualifies as a “unique archaeological resource.” The CEQA Statute defines “unique archaeological resource” as:

> *an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:*
>
> - *Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.*

- *Has a special and particular quality such as being the oldest of its type or the best available example of its type.*

- *Is directly associated with a scientifically recognized important prehistoric event or person [Public Resources Code § 21083.2(g)].*

According to CEQA Guidelines § 15064.5(b), only those resources determined to be “historical resources,” that is, eligible for listing in the CRHR, are considered to be subject to potential significant adverse impacts. The Guidelines also state, “A project with an effect that may cause a substantial adverse change in significance of an historical resource is a project that may have a significant effect on the environment” (CEQA Guidelines § 15064.5(b)). A “substantial adverse change” is defined as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines § 15064.5 (b)(1)). The significance of a historical resource is materially impaired when a project affects “those physical characteristics of an historical resource that convey its historical significance” (CEQA Guidelines § 15064.5(b)(2)(a)).

4.5.3 Applicant Proposed Measures

The following AMPs will be implemented as part of the Proposed Project design:

APM-CR-01: The Proposed Project has yet to identify pull and tension sites where conductor stringing activities will take place. These locations are approximately 300 feet within an existing easement by 100 feet in size, and require level areas to allow for maneuvering of the equipment. Where possible, these locations will be located on existing level areas and existing roads to minimize the need for grading and cleanup.

APM-CR-02: Construction monitoring may be required in the vicinity of the San Fernando Substation due to the proximity of the San Fernando Mission and the possibility for subsurface archaeological materials to be encountered.

APM-CR-03: A Historic American Engineering Record (HAER) shall be prepared prior to removal of Kern River One Towers used within the existing SCE 66 kV alignment

APM-CR-04: If previously unidentified archaeological resources are unearthed during construction activities, construction would be halted in that area and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. The archaeologist would recommend appropriate measures to record, preserve or recover the resources.

APM-CR-05: If human remains are encountered during construction or any other phase of development, work in the area of the discovery must be halted in that area and directed away from the discovery. No further disturbance would occur until the County Coroner makes the necessary findings as to origin pursuant to Public Resources Code 5097.98-99, Health and Safety Code 7050.5. If the remains are determined to be Native American, then the NAHC would be notified within 24 hours as required by Public

Resources Code 5097. The NAHC would notify the designated Most Likely Descendants who would provide recommendations for the treatment of the remains within 24 hours. The NAHC mediates any disputes regarding treatment of remains.

4.5.4 Environmental Impacts

The potential impact to cultural resources from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential cultural resource impacts, CEQA criteria were evaluated and are discussed separately for construction and operations. Because the project is not expected to have any impact on cultural resources due to operation of the Proposed Project, the CEQA checklist was only applied to the evaluations of construction activities and impacts to operations are only briefly mentioned.

4.5.4.1 Construction Impacts

Would the Proposed Project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

The records search indicated one known cultural resource was recorded within the Proposed Project area, CA-LAN-2484. No evidence of this site was encountered during the archeological field survey. All artifacts from the site were collected at the time it was originally recorded. The site has no depth and it was positioned in an aggrading environment. No previously undetected subsurface component of this site is expected to remain. No other cultural resources were identified during the survey. As a result, less than significant impacts to cultural resources are expected to occur through the implementation of the Proposed Project.

SCE identified historic towers along the alignment of the proposed SCE 66 kV sub-transmission modification. The towers are known as “Kern River One” towers manufactured in 1908 using windmill parts of historic significance. In accordance with APM-CR-03, impact to this potentially historic resource will be minimized through development of Historic American Engineering Record (HAER) shall be prepared prior to removal of Kern River One Towers used within the existing SCE 66 kV alignment.

Would the Proposed Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Based on the negative survey results, no archaeological resource will be subjected to a significant adverse change.

If previously unidentified archaeological resources are unearthed during construction activities, construction would be halted in that area and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. The archaeologist would recommend appropriate measures to record, preserve or recover the resources.

Would the Proposed Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

In the event that a unique paleontological resource or site or unique geologic feature, as defined in Section 4.5.4, is encountered, then a qualified paleontologist shall be retained to perform inspection of the excavation and disturbed soils and salvage exposed fossil specimens.

Based on the study performed, the Proposed Project would not directly or indirectly destroy a paleontological resource or site, or unique geologic feature. Therefore, no impacts are anticipated, and no mitigation is required.

Would the Proposed Project disturb any human remains, including those interred outside of formal cemeteries?

If human remains are encountered during construction or any other phase of development, work in the area of the discovery must be halted in that area and directed away from the discovery. No further disturbance would occur until the County Coroner makes the necessary findings as to origin pursuant to Public Resources Code 5097.98-99, Health and Safety Code 7050.5. If the remains are determined to be Native American, then the NAHC would be notified within 24 hours as required by Public Resources Code 5097. The NAHC would notify the designated Most Likely Descendants who would provide recommendations for the treatment of the remains within 24 hours. The NAHC mediates any disputes regarding treatment of remains.

The cultural survey found no evidence that human remains are likely to be encountered. No impact is expected.

4.5.4.2 Operation Impacts

Operation of the Proposed Project consists of routine operation and maintenance of the proposed Central Compressor Station, the proposed SCE Natural Substation and proposed SCE 66 kV sub-transmission modification and other Proposed Project components. These activities would not affect any known archaeological or historical resources, and expected to have no future impact.

4.5.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** due to construction and operation; therefore no mitigation is required or proposed.

4.5.6 References

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4.6 Geology, Soils, and Seismicity

This section describes potential hazards associated with geology, soils and seismicity related to construction and operation of the Proposed Project. The impacts and mitigation measures, where applicable, are also discussed.

The Proposed Project components that do not involve rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; lateral spreading, subsidence; liquefaction, landslides, soil erosion or the loss of topsoil; or located on a geologic unit or soil that is unstable; were not assessed. These components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations and construction support activities.

4.6.1 Existing Geologic Setting

The Proposed Project is located near the southern edge of the Ventura Basin of the Transverse Ranges geomorphic province of California, and lies within both the Santa Clara River Valley and the San Fernando Valley on the southern side of the Santa Susana Mountains. The Proposed Project lies within the jurisdiction of the Los Angeles County. The San Fernando Valley is a triangular-shaped alluvial plain 20 miles long in an east-west direction which is an area of compression between the San Gabriel Mountains on the northeast and the Santa Monica Mountains on the south. The valley narrows from 10 miles wide at its western end to 3 miles wide at its eastern end.

The Santa Susana Mountains are bounded to the south by the San Fernando Valley across the Santa Susana Fault, and on the north by Santa Clara River and Newhall across the Oak Ridge and related faults (Globus, 2006). The Ventura Basin is filled with a sequence of sedimentary rocks that are middle Miocene to Holocene in age (BAS, Sunshine Canyon Report, 2008).

The lithology beneath the Proposed Project consists of upper Cretaceous sediments, Tertiary and Quaternary marine sedimentary and alluvial/stream channel sediments, which are thousands of feet thick. Below the thick accumulations of sediments are crystalline Basement Complexes which are Mid Cretaceous and older in age (Norris and Webb, 1990).

The mountainous areas within the Proposed Project include the Oat Mountains and the Santa Susana Mountains. While the floodplain of the Santa Clara River is fairly flat, most of the topography within the planning area is rugged and is characterized by steepsided canyon lands. Elevations range from about 1,270 feet above mean sea level (MSL) near the Newhall substation along the Santa Clara River to about 3,000 feet above MSL just west of Aliso Canyon within the Santa Susana Mountains in the western area of the Proposed Project.

The Transverse Ranges geomorphic province of California is composed of a series of east-west trending mountain ranges interspersed with alluvium-filled basins. This province is characterized by an east/west-trending sequence of ridges and valleys formed by a combination of folding and faulting during a period of compression and uplift. The western Transverse Ranges extend from about Ventura County west to Point Arguello and are composed of sedimentary, igneous, and metamorphic rocks ranging in geologic age from Jurassic (144 million to 208 million years ago) to Holocene (recent). North-south tectonic compression has resulted in regional east-west trending faults and folds within rocks of the western Transverse Ranges (Norris and Webb, 1990).

The trough of the Ventura Basin was first formed in the Pliocene (4 million to 5 million years ago). The Basin was subsiding faster than it was filling with sediment and as a result, the sediment and fossils found in the older Ventura Basin formations are typical of deep marine conditions. Within the basin are several prominent anticlinal hills, including the Santa Susana Mountains which enclose the west and northwest San Fernando Valley. Other ridges are Sulfur Mountains and the South Mountain-Oak Ridge Complex, which joins the Santa Susana Mountains to the east (Norris, and Webb, 1990).

The northern portion of the Proposed Project is primarily underlain by marine and nonmarine sedimentary rocks divided among the Towsley, Pico, and Saugus Formations. The entire length of the existing 66 kV sub-transmission system from Newhall Substation to the proposed SCE Natural Substation crosses similar geologic units such as the Modelo/Monterey, Pico, Towsley, and Saugus Formations.

The Pico Formation (Pliocene) is mainly located within along the central portion of the Proposed Project around the Gavin Canyon to just south of Rice Canyon. The Pico Formation comprises marine clayey siltstone and sandy siltstone. The soft, olive gray color unit, contains interbeds of very fine-grained sandstone. Siltstone locally contains abundant foraminifera and well-cemented shells of invertebrates.

Towsley Formation (early Pliocene and late Miocene) is mainly located the along the alignment of the existing 66 kV sub-transmission system which transects the I-5 Freeway to the south and within the Sunshine Canyon Landfill. This is a marine unit, thick-bedded to poorly sorted, and very fine-grained to granular sized. Slopes comprising the Towsley Formation are subject to bedding plane failure, landsliding, where the bedding dips out of slope and rock falls, rock slides, and rotational failures.

The Modelo Formation is of Miocene age (5 million to 25 million years) and consists of marine deposits of gray, white, and brown, shale, siltstone, and sandstone located primarily within the Aliso Canyon Oil Field which is located at the top of a hill where two canyon washes (Aliso and Limekiln Canyons) meet and drain to the southwest into the San Fernando Valley (USGS Topographic Map, Oat Mountain Quadrangle, dated 1952; photorevised, 1969).

Geologic Units

Geologic units present at the Proposed Project are presented in Table 4.6-1 and are based on a review of four State Geologic Maps: Geology of the Southeast Quarter of the Oat Mountain [7.5'] Map Sheet Quadrangle (Saul, 1979), the Southwestern Quarter of the Oat Mountain [7.5'] Map Sheet Quadrangle (Evans and Miller, 1978), the Geologic Map of the Oat Mountain and Canoga Park Quadrangles (Dibblee, 1992), and the Newhall Quadrangle (Dibblee, 1996). A map showing the Proposed Project and local geology is provided on Figure 4.6-1.

The Proposed Project and surrounding areas is characterized by artificial fill, alluvium, landslide and slope wash deposits; a small portion mapped as a possible surficial slide. Artificial fill consists of uncontrolled deposits of construction debris, particularly adjacent to river and creek banks, and engineered fill placed during land improvement projects.

The alluvium consisting primarily of non-marine deposits of undifferentiated, unconsolidated, massive to weakly stratified sand, silt, clay, gravel, and boulders including stream channel deposits, colluvium and slope wash, alluvial fan deposits, valley fill and floodplain deposits are of Quaternary age (11,000 million to 1.8 million years old) and are located within the northern segment of the existing 66 kV sub-transmission system along I-5 from the Newhall substation to about Rice Canyon.

A small area along the southern perimeter of the Proposed Project is mapped as a possible surficial slide composed of slope wash with a small amount of weathered rock material. The Topanga Formation mapped in the Proposed Project is described as semi-friable, light gray to tan, massive to vaguely bedded and sparsely fossiliferous in places (Dibblee, 1992).

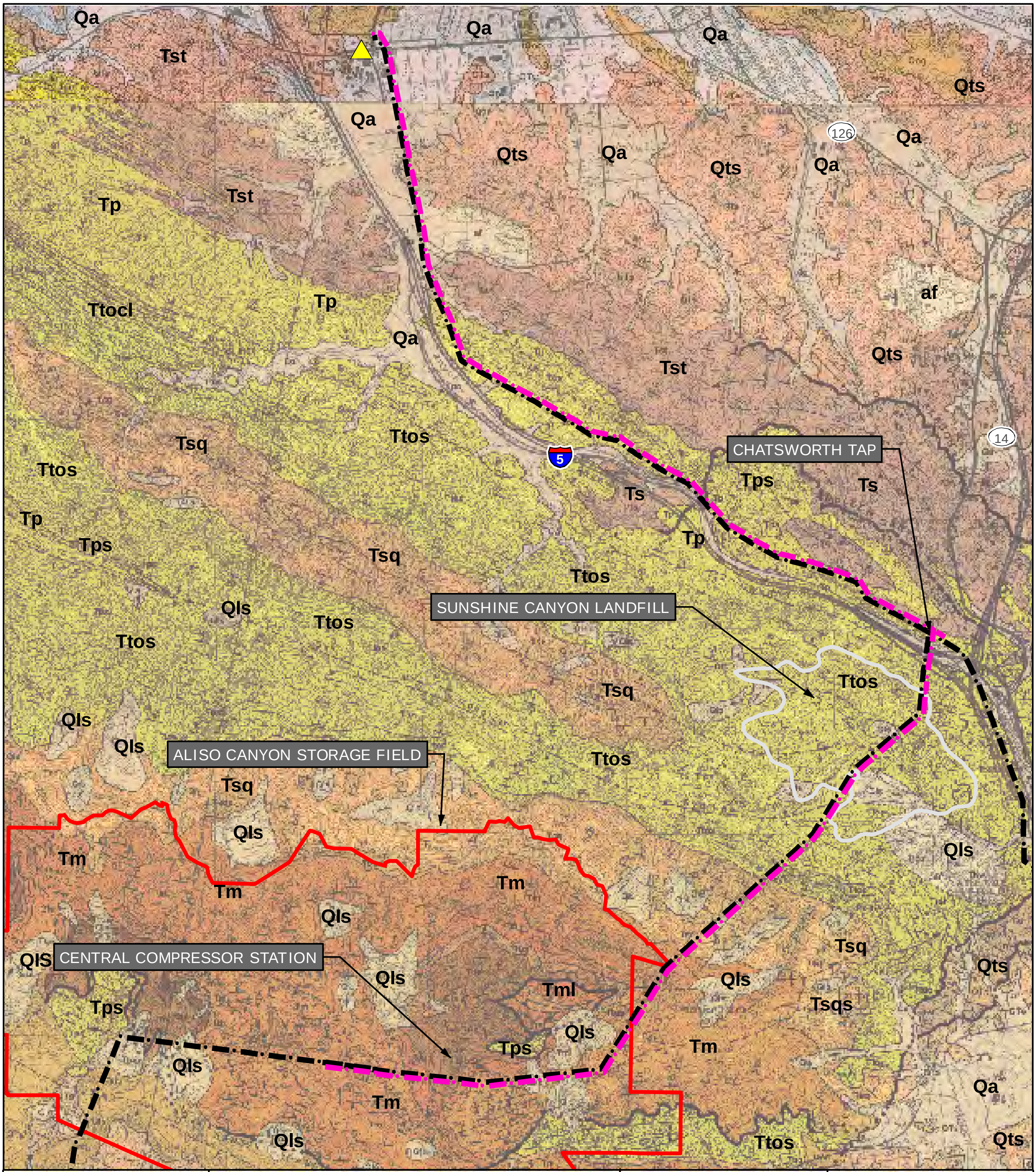
The Saugus Formation (early Pleistocene to late Pliocene) is mainly located within the northern portion of the Proposed Project near the Newhall substation and east of the I-5 Freeway and is described as nonmarine, weakly consolidated light gray pebble conglomerate and sandstone composed of pebbles and small cobbles, mostly of granitic rocks and few of gneiss, metavolcanic rocks, quartzite, anorthosite, gabbro, and tertiary volcanic rocks (Dibblee, 1992).

The Pico Formation (Pliocene) is mainly located along the central portion of the Proposed Project around the Gavin Canyon to just south of Rice Canyon. The Pico Formation comprises marine clayey siltstone and sandy siltstone. The soft, olive gray color unit, contains interbeds of very fine-grained sandstone. Siltstone locally contains abundant foraminifera and well-cemented shells of invertebrates.

Towsley Formation (early Pliocene and late Miocene) is mainly located along the alignment of the existing 66 kV sub-transmission system which transects the I-5 Freeway to the south and within the Sunshine Canyon Landfill. This is a marine unit, thick-bedded to poorly sorted, and very fine-grained to granular sized. Slopes comprising the Towsley Formation are subject to bedding plane failure, landsliding, where the bedding dips out of slope and rock falls, rock slides, and rotational failures.

The Modelo and Topanga Formations are of Miocene age (5 million to 25 million years) and consists of marine deposits of gray, white, and brown, shale, siltstone, and sandstone located primarily within the Aliso Canyon Oil Field.

Geologic units mapped in the vicinity of the Proposed Project are presented in Table 4.6-1 and are based on a review of the above referenced State Geologic Maps series.



Map Location

Legend For Geology Types Please See Page 2

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Sunshine Canyon Landfill
- Aliso Canyon Storage Field
- Existing SCE Substation

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Aliso Canyon PEA

Figure 4.6-1 Proposed Project and Nearby Local Geology

Source:Dibblee, T.W., Jr., 1992.Geologic Map of the Oat Mountain and Canoga Park (north Half), Newhall Quadrangles, Los Angeles County, California

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Table 4.6-1 Geologic Units Present in the Vicinity of the Proposed Project

Geologic Formation Name	Geologic Symbol	Description of Lithology
Artificial Fill	(af)	Artificial fill will likely be encountered, with the most probable locations being abutments and urban areas. Artificial fill may range from uncontrolled deposits of construction debris, particularly adjacent to river and creek banks, to engineered fill placed during land improvement projects.
Quaternary Terrace Deposits	Qt	These deposits are remnants of an old erosion surface (stream laid gravels). These older terrace deposits are generally stable except where they are underlain by weak or undercut bedded material.
Landslide deposits (Holocene and late Pleistocene?)	Qls	Rock detritus from bedrock and surficial materials, broken in varying degrees from relatively coherent large blocks to disaggregated small fragments, deposited by landslide processes including slides, slumps, falls, topples and flows; generally unconsolidated; some dissected landslides may be as old as late Pleistocene. A few large landslides toe below present sea level or stream level.
Older alluvium	Qoa	Older alluvial deposits consist of non-marine deposits of undifferentiated, dissected and/or uplifted, unconsolidated to poorly consolidated, non-stratified to slightly stratified sand, silt, clay, and gravel including terrace deposits, older alluvial fan deposits, and valley fill and floodplain deposits. The older alluvium is of Quaternary age (<1.8 million years old). Slopes comprising the older alluvium may be subject to bank failure and slumping.
Saugus	Ts	The Saugus Formation is made up of three units: the Upper Member, Middle Member and Sunshine Ranch Member. The Pliocene to Pleistocene aged (11,000 million to 5 million years old) Saugus formation consists of non-marine deltaic deposits of poorly to well consolidated, cross bedded, pebbly, coarse sandstone and conglomerate. The Saugus Formation grades downward into estuarine deposits comprising fine to medium grained clayey sandstone and siltstone. Slopes within the Saugus Formation are subject to gradual raveling and small slumps can occur.
Pico	Tp	The Pico Formation is of Pliocene age (1.8 million to 5 million years) and consists of marine deposits of blue-gray, tan, and brown, interbedded siltstone, sandstone, shale, mudstone, and conglomerate. The fine-grained units are lamellar to thick-bedded, fossiliferous, and commonly expansive. The coarse grained units are generally poorly sorted, thin-bedded to massive, and poorly to moderately indurated. Slopes within the Pico formation are subject to widespread large- and small-scale bedrock and surficial landslides.
Towsley	Pt	The Towsley Formation is of Late Miocene to Early Pliocene age (2 million to 10 million years) and consists of marine deposits of tan, white, and reddish brown, siltstone and sandstone. The Towsley Formation is thick-bedded to poorly sorted, and very fine-grained to granular sized. The topographic expression of the sandstone units can

Geologic Formation Name	Geologic Symbol	Description of Lithology
		support steep cliffs up to several hundred feet thick. Slopes comprising the Towsley Formation are subject to bedding plane failure where the bedding dips out of slope and rock falls, rock slides, and rotational failure were the where the topographic relief is great.
Modelo	Tm	The Modelo Formation is of Miocene age (5 million to 25 million years) and consists of marine deposits of gray, white, and brown, shale, siltstone, and sandstone. The Modelo Formation is thin-bedded to finely laminated, siliceous, diatomaceous, cherty, and clayey with localized carbonized organic material, vitreous, expansive, and fossiliferous. Slopes comprising the Modelo Formation are subject to large- and small-scale landslides where bedding dips out of slope and rotational failure where the rock is fractured and moist to saturated. The Modelo formation is considered the equivalent of the Monterey formation in the eastern portion of the Ventura basin.
Topanga	Mt	Marine sandstone and conglomerate. Semi-friable conglomerate, sandstone and siltstone, light gray to tan, massive to vaguely bedded and sparsely fossiliferous in places. The siltstone is interbedded with minor thin lenses of conglomerate sandstones. This unit flakes and spalls into small fragments in cuts and is landslide prone.

Sources: California Geological Survey (CGS), Preliminary Geologic Map of the Los Angeles 30´ x 60´, Quadrangle, Southern California Open-File Report 2005-1019), Compiled by Robert F. Yerkes and Russell H. Campbell, 2005, and Southeast and Southwest Quarters of the Oat Mountain [7.5'] Map Sheet Nos. 30/33 Quadrangles, Saul, 1979, and Geologic Map of the Oat Mountain and Canoga Park Quadrangles, Dibblee, 1992

4.6.1.1 Soils

Several soil types are present within the Proposed Project area. Soils information presented herein was obtained from the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (formerly the Soil Conservation Service), and Soil Survey Geographic (SSURGO) database.

The soils are within the Castaic-Balcom, Gaviota and Milsholm Soil association. These soils are derived from deposits of the sediment and alluvial materials, primarily from the erosion of intrusive granitic rocks, metamorphic schist, slates and sedimentary rocks (sandstone and shale) originating from the nearby Mountains.

The soils underlying the Proposed Project are generally well drained, with some excessively drained, consisting of loamy sands, silty clay loams, clayey loams, coarse sandy loams, and rocky sandy loams on low river terraces and alluvial deposits. Soils in the Proposed Project have a low to moderate shrink/swell potential, and are prone to medium to very high erosion.

Based on the corrosivity testing of the soil samples collected around the Compressor Station by Globus Engineering, the risk of corrosion to steel is very high for ferrous metals under saturated conditions and moderately corrosive to corrosive under existing field moisture conditions. The silty clay and sandy loam soils underlying the Proposed Project are classified as “saline alkali” and have a relatively alkaline pH (7.64 to 8.12). The risk of caving in shallow excavations is generally low, and the erosion hazard is medium to very high. The sandy loams are less cohesive. Although the risk of corrosion to steel is also generally high in these soils, the risk of corrosion to concrete is low. The shrink/swell potential is low to moderate for coarser texture soils.

Figure 4.6-2 shows the soils in the vicinity of the Proposed Project. Table 4.6-2 describes the soil types and their characteristics.

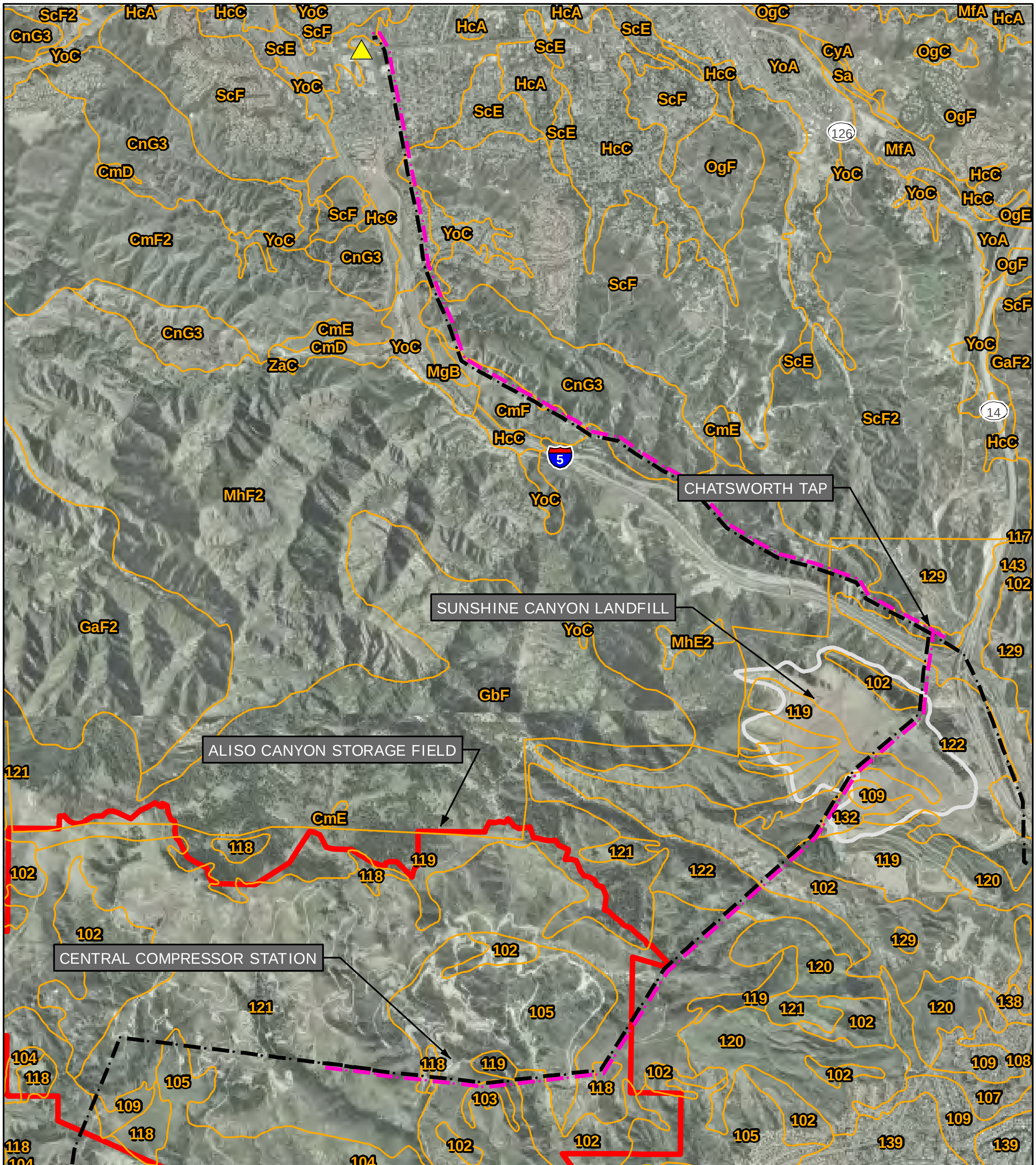
Table 4.6-2 Soil Types and Characteristics in the Vicinity of Proposed Project

Map Unit Symbol	Soil Type Name and Description	Shrink/Swell Potential	Drainage Class	Erosion Class	Subsoil Permeability	Runoff
102	Badland	Low	--	Low	Very Low	
103	Balcom silty clay loam, 9 to 15 percent slopes	Moderate	Well drained	Medium	Moderately High	Very high
105	Balcom silty clay loam, 30 to 50 percent slopes	Moderate	Well drained	Very High	Moderately High	High
107	Capistrano-Urban land complex, 0 to 2 percent slopes	Low	--	Low	High	N/A
108	Capistrano-Urban land complex, 2 to 9 percent slopes	Low	--	Low	High	Very low
109	Chualar-Urban land complex, 2 to 9 percent slopes	Low	Well drained	Low	Moderately High	N/A
117	Gaviota sandy loam, 30 to 50 percent slopes	Low	Well drained	Very High	High	N/A
118	Gazos silty clay loam, 15 to 30 percent slopes	Moderate	Well drained	Very High	Moderately High	Medium
119	Gazos silty clay loam, 30 to 50 percent slopes	Moderate	Well drained	Very High	Moderately High	N/A
120	Gazos-Balcom complex, 30 to 50 percent slopes	Moderate	Well drained	Very High	Moderately High	N/A
121	Lopez shaly clay loam, 30 to 50 percent slopes	Low	Excessively drained	High	Moderately High	Very high
122	Millsholm loam, 30 to 50 percent slopes	Low	Well drained	Very High	Moderately High	N/A
128	Saugus loam, 15 to 30 percent slopes	Low	Well drained	High	Moderately High	N/A
129	Saugus loam, 30 to 50 percent slopes	Low	Well drained	Very High	Moderately High	N/A
132	Soper gravelly sandy loam, 15 to 30 percent slopes	Low	Well drained	Very High	Moderately High	High
138	Xerorthents, 0 to 30 percent slopes	Low	Well drained	Low	Very Low	Very high
139	Xerorthents-Urban land-Balcom complex, 5 to 15 percent slopes	Low	Well drained	Low	Very Low	N/A
143	Xerorthents-Urban land-Saugus complex, 15 to 30 percent slopes	Low	Well drained	Low	Very Low	N/A
CmD	Castaic-Balcom silty clay loams, 9 to 15 percent slopes	Moderate	Well drained	Medium	Moderately High	N/A

Map Unit Symbol	Soil Type Name and Description	Shrink/Swell Potential	Drainage Class	Erosion Class	Subsoil Permeability	Runoff
CmE	Castaic-Balcom silty clay loams, 15 to 30 percent slopes	Moderate	Well drained	Very High	Moderately High	N/A
CmF	Castaic-Balcom silty clay loams, 30 to 50 percent slopes	Moderate	Well drained	Very High	Moderately High	N/A
CmF2	Castaic-Balcom silty clay loams, 30 to 50 percent slopes, eroded	Moderate	Well drained	Very High	Moderately High	N/A
CnG3	Castaic and Saugus soils, 30 to 65 percent slopes, severely eroded	Moderate	Well drained	Very High	Moderately High	Very high
CyA	Cortina sandy loam, 0 to 2 percent slopes	Low	Excessively drained	Low	High	N/A
GaF2	Gaviota rocky sandy loam, 30 to 50 percent slopes, eroded	Low	Well drained	Very High	High	N/A
GbF	Gazos clay loam, 30 to 50 percent slopes	Moderate	Well drained	Very High	Moderately High	Very high
HcA	Hanford sandy loam, 0 to 2 percent slopes	Low	Well drained	Low	High	N/A
HcC	Hanford sandy loam, 2 to 9 percent slopes	Low	Well drained	Low	High	Very low
MfA	Metz loamy sand, 0 to 2 percent slopes	Low	Excessively drained	Low	High	N/A
MgB	Metz loam, 2 to 5 percent slopes	Low	Excessively drained	Low	Moderately High	N/A
MhE2	Millsholm rocky loam, 15 to 30 percent slopes, eroded	Low	Well drained	High	Moderately High	Low
MhF2	Millsholm rocky loam, 30 to 50 percent slopes, eroded	Low	Well drained	Very High	Moderately High	Very high
OgC	Ojai loam, 2 to 9 percent slopes	Low	Well drained	Low	Moderately High	Very high
OgE	Ojai loam, 15 to 30 percent slopes	Low	Well drained	High	Moderately High	Medium
OgF	Ojai loam, 30 to 50 percent slopes	Low	Well drained	Very High	Moderately High	N/A
Sa	Sandy alluvial land	Low	Excessively drained	Low	High	High
ScE	Saugus loam, 15 to 30 percent slopes	Low	Well drained	High	Moderately High	Very low
ScF	Saugus loam, 30 to 50 percent slopes	Low	Well drained	Very High	Moderately High	High

Map Unit Symbol	Soil Type Name and Description	Shrink/Swell Potential	Drainage Class	Erosion Class	Subsoil Permeability	Runoff
ScF2	Saugus loam, 30 to 50 percent slopes, eroded	Low	Well drained	Very High	Moderately High	N/A
YoA	Yolo loam, 0 to 2 percent slopes	Low	Well drained	Low	Moderately High	High
YoC	Yolo loam, 2 to 9 percent slopes	Low	Well drained	Low	Moderately High	N/A
ZaC	Zamora loam, 2 to 9 percent slopes	Low	Well drained	Low	Moderately High	N/A

Notes: Erosion classification based on Bureau of Land Management (BLM) Standard (NRCS rating by County may be different): 0-3 Low; 3-5 Medium; 5-7 High; >7 Very High. Source: USDA, 2009 (http://www.nrcs.usda.gov/) and USDA,1969. Report and General Soil Map. Los Angeles County, California



Map Location

Legend

For Soils Legend See Page 2

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Sunshine Canyon Landfill
- Existing SCE Substation
- Aliso Canyon Storage Field
- Soil Map Unit

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Aliso Canyon PEA

Figure 4.6-2
Soil Types in the Vicinity of the Proposed Project

Source: NRCS Web Soil Survey 2009

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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4.6.1.2 Faulting and Seismicity

Southern California is a geologically complex and diverse area, dominated by the compressional forces created as the North American and Pacific tectonic plates slide past one another along a transform fault known as the San Andreas. Regional tectonic compressional forces shorten and thicken the earth's crust, creating and uplifting the local transverse mountain ranges, including the Santa Susana, Santa Monica, and San Gabriel. A variety of fractures within the crust are created to accommodate the compressional strain, allowing one rock mass to move relative to another rock mass (Norris and Webb, 1990).

Within southern California, several fault types are expressed, including lateral or strike slip faults, vertical (referred to as normal and reverse or thrust faults) and oblique faults accommodating both lateral and vertical offset. Earthquakes are the result of sudden movements along faults, generating ground motion (sometimes violent) as the accumulated stress within the rocks is released as waves of seismic energy.

The Proposed Project is located within a seismically active area of southern California, a region that has experienced numerous earthquakes in the past and most recently, near the epicenter of the January 1994 Northridge Earthquake. The January 1994 Northridge Earthquake caused the Storage Field to shut down for three days; however, the reservoir remained in tact and the integrity of the field was never compromised. There were no major damages, only minor damage to some of the injection/withdrawal wells and piping. There is the potential for the Proposed Project area to experience strong ground shaking from local and regional active faults. Within the Santa Susana Mountains, faulting is very common; however, the majority has not been evaluated for activity.

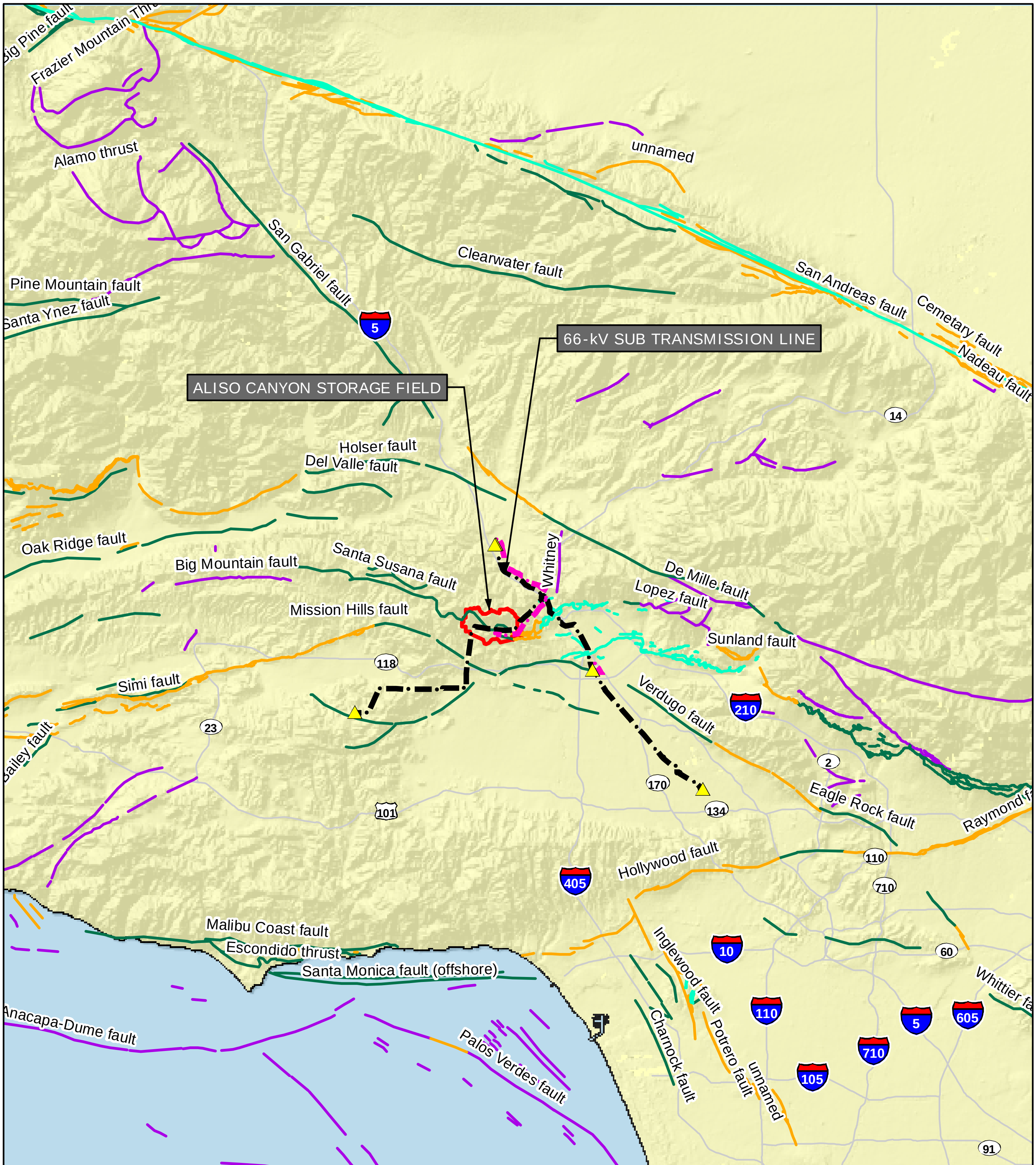
The California Geological Survey (CGS), previously known as the California Division of Mines and Geology (DMG), developed criteria to classify fault activity for the Alquist-Priolo (AP) Earthquake Fault Zoning Program (Hart, 1999). By definition, an active fault is one that is "sufficiently active and well defined," with evidence of surface displacement within Holocene time (about the last 11,000 years). These terms are defined in Special Publication 42 (Hart, 1999) and reproduced below.

> "Sufficiently active. A fault is deemed sufficiently active if there is evidence of Holocene surface displacement along one or more of its segments or branches. Holocene surface displacement may be directly observable or inferred; it need not be present everywhere along a fault to qualify that fault for zoning."

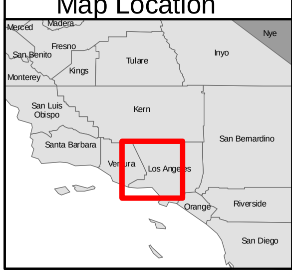
> "Well-defined. A fault is considered well-defined if its trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The fault may be identified by direct observation or by indirect methods (e.g., geomorphic evidence). The critical consideration is that the fault, or some part of it, can be located in the field with sufficient precision and confidence to indicate that the required Proposed Project-specific investigations would meet with some success."

A potentially active fault displaces Quaternary age deposits (last 1.6 million years). Although to a lesser degree, potentially active faults also represent possible surface rupture hazards. In contrast to active or potentially active faults, faults considered inactive have not moved in the last 1.6 million years.

A computer-aided search of the known sufficiently active faults was conducted within a 25-mile radius using the compressor station as the starting point (target site) in order to capture all of the project components. The search was conducted using the EQFAULT computer program, Version 3.0 (Blake, 2000). Using the EQFAULT typically provides the approximate distance from the Proposed Project to known active faults, the estimated maximum earthquake potential for a given fault, and the estimated peak acceleration. These faults are listed in Table 4.6-3. Active and Potentially Active Faults in the region are shown on Figure 4.6-3.



Map Location



Legend

- Existing SCE Substation
- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Historic Faults (<200 Years)
- Holocene Faults (<11.000 Years)
- Late Quaternary Faults (<750,000 Years)
- Quaternary Faults (<1,600,000 Years)

1 inch = 8 miles

0 8 16 Miles

N W E S

Aliso Canyon PEA
Figure 4.6-3
Regional Fault Map

Source: http://www.consrv.ca.gov
/CGS/information/publications/

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Table 4.6-3 Summary of Faults Located Within 20 Miles of the Proposed Project

Fault Name	Distance From Proposed Project in miles (kilometers)	Estimated Maximum Earthquake Magnitude (M_w)	Last Rupture
San Fernando*	2.7 (4.3)	6.7	Late Quaternary, except for a short segment which ruptured slightly in1971
Northridge Hills (E. Oak Ridge)	3.4 (5.4)	6.9	Holocene, in part; mainly Late Quaternary Slip
Mission Hills	4 (6.4)	6.2	Late Quaternary, possibly Holocene
Big Mountain	8 (12.8)	--	Late Quaternary
Devonshire	1.7 (2.8)	7.0	Holocene
Holser	3.6 (5.8)	6.5	Late Quaternary
San Gabriel	4.7 (7.5)	7	Late Quaternary
Sierra Madre	5 (8.1)	6.7	1971
Oak Ridge (Onshore)	10.1 (16.3)	6.9	Holocene, in part; mainly Late Quaternary
Whitney	1.0 (1.6)	--	Late Quaternary
Verdugo	10.3 (16.5)	6.7	Holocene; Late Quaternary along northern segment
San Cayetano	14 (22.6)	6.8	Less than 5,000 years ago
Simi-Santa Rosa	15 (24.1)	6.7	Holocene
Sierra Madre	15.2 (24.5)	7	Holocene
Hollywood	19.5 (31.4)	6.4	Holocene
Santa Monica	20.3 (32.6)	6.6	Late Quaternary
Malibu Coast	21.7 (35)	6.7	Holocene, in part; otherwise Late Quaternary
San Andreas - 1857 Rupture	22.5 (36.2)	7.8	1857
San Andreas- Mojave	22.5 (36.2)	7.1	1857
Anacapa-Dume	22.7 (36.6)	7.3	Not available
San Andreas - Carrizo	23.7 (38.1)	7.2	Not available
Raymond	24.5 (39.5)	6.5	Holocene
Newport-Inglewood (Long Beach)	24.9 (40)	6.9	1933
Santa Ynez (East)	25.2 (40.6)	7	Late Quaternary; except for a short Holocene segment near the intersection with the Baseline fault

*Note: The distance from the Proposed Project (defined in this radius search as the compressor station) to the Santa Susana Fault zone is ~ 0.5-mile; however, the southernmost portion of the existing 66 kV sub-transmission system lies just southeast of this fault zone.

Source: Computer program EQFAULT and CGS, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, Version 2.0, 2000.

Faults generally produce damage in two ways: ground shaking and surface rupture. Seismically induced ground shaking covers a wide area and is greatly influenced by the distance of the Proposed Project to the seismic source, soil conditions, and depth to groundwater. Surface rupture is limited to very near the fault. Other hazards associated with seismically induced ground shaking include earthquake-triggered landslides and tsunamis.

The California Division of Mines and Geology (1996) classifies faults into two categories in their modeling of California's seismic risk. These categories are:

- Type A faults - these faults have slip rates greater than 5 millimeters per year and magnitude (M) > 7.0 and well constrained paleoseismic data. The San Andreas and Elsinore faults are examples of a Type A fault.

- Type B faults - all other faults not classified as Type A faults. Type B faults lack paleoseismic data necessary to constrain the recurrence interval of large events. The San Gabriel, Oak Ridge, Holser, and Santa Susana faults are Type B faults.

Seismic events on any of these active or potentially active faults could cause strong ground shaking, surface fault rupture, or liquefaction in susceptible areas. Active and Potentially Active faults in the region are shown on Figure 4.6-3.

The San Gabriel is a principal active fault in California and is mapped by the CGS, and zoned, under the Alquist-Priolo Earthquake Fault Zoning Act (DMG, Special Publication [SP] 42), as a Alquist-Priolo Fault Hazard Zone. This fault has not experienced historic surface rupture (i.e., within the last 200 years).

A number of earthquakes of moderate to major magnitude have occurred in the southern California area within the last 75 years (CGS, SP116, 1995). A partial list of these earthquakes and magnitude which occurred between 1933 through 1999, is included in the following table:

Table 4.6-4 List of Historic Earthquakes in Southern California

Earthquake	Date of Earthquake	Magnitude (M)	Distance to Epicenter (mi)
Long Beach	March 10, 1933	6.4	55
Tehachapi (Kern)	July 21, 1952	7.5	42
San Fernando	February 9, 1971	6.7	3
Whittier Narrows	October 1, 1987	5.9	30
Sierra Madre	June 28, 1991	5.8	32
Landers	June 28, 1992	7.3	150
Big Bear	June 28, 1992	6.4	95
Northridge	January 17, 1994	6.7	4
Hector Mine	October 16, 1999	7.1	120

Note: M = magnitude; M_w = estimated maximum earthquake magnitude.

The Proposed Project could be subjected to strong ground shaking in the event of an earthquake. However, this geological hazard is common in southern California and the effects of ground shaking can be mitigated by proper engineering design and construction in conformance with current building codes and engineering practices.

The AP Earthquake Fault Zoning Act was enacted by the State of California in 1972 to mitigate the hazard of surface faulting to structures planned for human occupancy and other critical structures. This law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive fault ruptures that damaged numerous residential dwellings, commercial buildings, and other structures. The State has established regulatory zones (known as Earthquake Fault Zones and often referred to as “AP zones”) around the surface traces of active faults and Earthquake Fault Zone maps to be used by government agencies in planning/reviewing new construction. In addition to residential projects, structures planned for human occupancy that are associated with industrial and commercial projects are of concern.

A review of the AP Earthquake Fault Zone Maps (CGS, Interim Revision, 2007), indicates that the Proposed Project does not lie within an AP Earthquake Fault Zone. Although not designated as AP Earthquake Faults, numerous nearby faults have been mapped in the area (Figure 4.6-4). The closest identified fault is the Santa Susana fault, located adjacent to, and east of, the Aliso Canyon area, southeast of the water tank and the existing 66 kV sub-transmission alignment. There is no evidence that this fault has offset Holocene age alluvial deposits (County of Los Angeles, Seismic Safety Element, 1990). Ziony and Jones (1989) indicate that the fault is potentially active (i.e., no displacement of Holocene age alluvium). Additionally, Jennings (1994) indicates that the fault is potentially active.

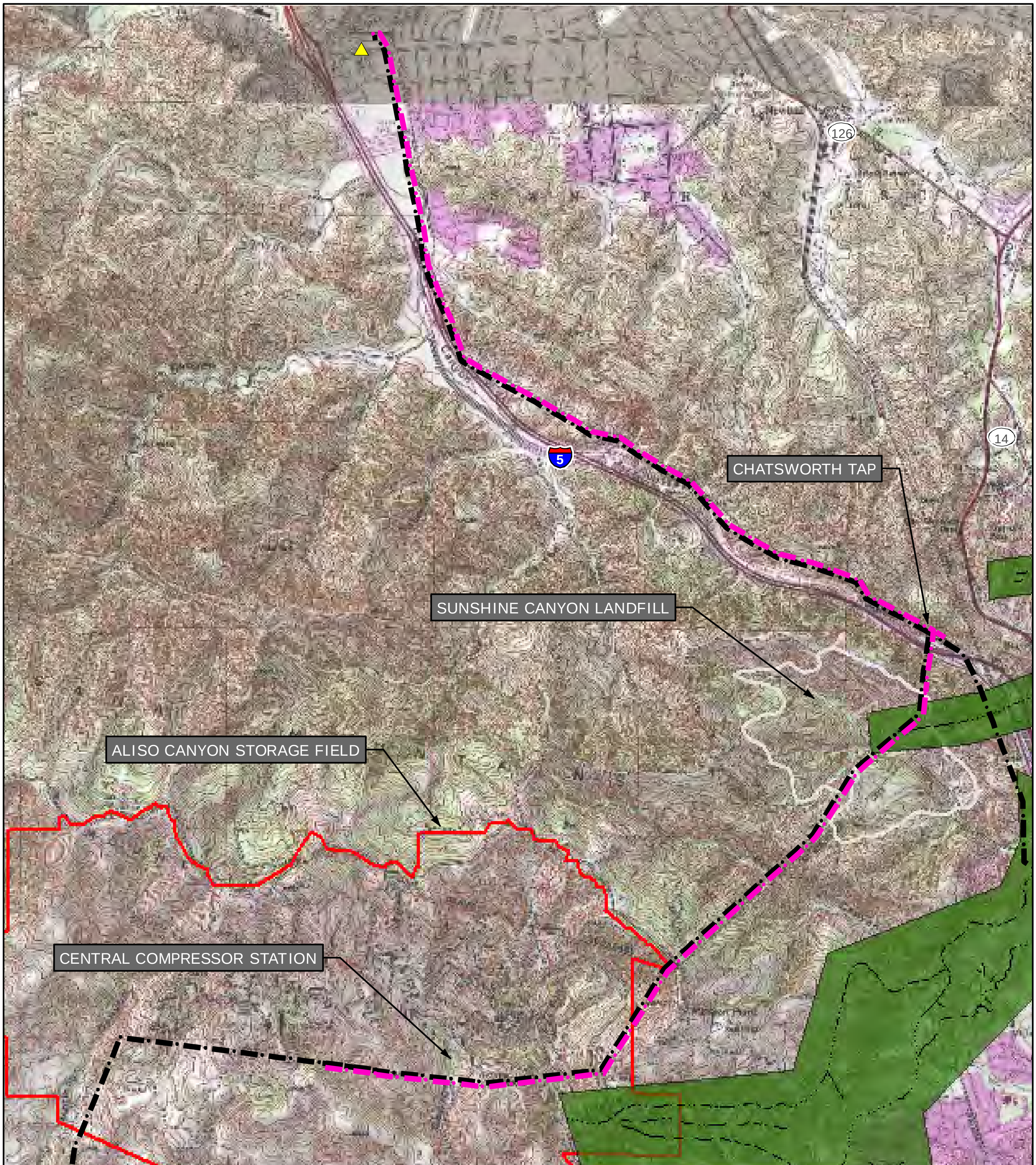
The Santa Susana fault has the potential to produce a maximum credible earthquake magnitude of 6.7. Other seismically active faults in the area include the San Gabriel Fault (approximately 2.5 miles north of Newhall), Northridge Fault (~ 2 miles south of the Plant Station), and the Sierra Madre San Fernando segment (~ 0.5-mile east of Plant Station). These faults have the potential to generate maximum credible earthquakes (MCE) of M_w 7.0, M_w 7.0 and M_w 6.7, respectively (Norris and Webb, 1990). The aforementioned faults are all classified as Type B faults.

The notorious San Andreas Fault system is more than 800 miles long and extends to depths of at least 10 miles beneath the Earth’s crust. It lies ~ 20 miles northeast of the Newhall substation, and is a Type A fault. Several active and potentially active faults and fault zones are present in the vicinity of the Proposed Project, and are discussed below:

Active Faults

San Andreas Fault

The San Andreas Fault is the dominant active fault in California and is classified as an active right lateral strike-slip fault and capable of producing a 8-plus M regional earthquake. The San Andreas Fault Zone is located 20 miles northeast of the Newhall substation. This fault zone, California's most prominent fault, trends generally northwest for almost the entire length of the State. The southern segment, closest to the Proposed Project, is approximately 280 miles long and extends from the Mexican Border to the Transverse Ranges west of Tejon Pass. It is the primary surface boundary between the Pacific and the North American plate. This fault is capable of producing a moment M 8 to M 8.5 earthquake. There have been numerous historic earthquakes along the San Andreas Fault. The 1857 Fort Tejon earthquake was the last major earthquake along the San Andreas Fault Zone in southern California.



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Inferred Fault Traces
- Concealed Fault Traces
- Accurately Located Fault Traces
- Approximately Located Fault Traces
- Alquist Priolo Fault Zone Boundary Polygons
- Existing SCE Substation

1 inch = 3,500 feet

0 3,500 7,000 Feet

Aliso Canyon PEA

Figure 4.6-4
Alquist-Priolo Fault Hazard Zone Map

Sources: CA Geological Survey, CA Division of Mines and Geology, 1976 Special Studies Zone Fault Zone Map, Oat Mountain Quadrangle

Project: 06205-134
Date: September 2009

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San Fernando Fault Zone

The San Fernando Fault is located 3 miles east of the Proposed Project. The San Fernando Fault is an active fault of an ~ 12 miles (19 kilometers [km]) segment of the Sierra Madre-Santa Susana fault system and was the source of the 1971 San Fernando (Sylmar) earthquake. An earthquake of M 6.7 originated along this fault zone on February 9, 1971. According to DMG, 1996, the San Fernando Fault Zone has an estimated average slip rate of 2 millimeters per year (mm/yr).

The San Fernando Fault Zone comprises one of a number of left lateral/reverse frontal faults bounding the southern margin of the Santa Susana Mountains and the portion of the San Gabriel Mountains west of Big Tujunga Canyon. Surface rupture occurred along the Tujunga, Sylmar, and Mission Wells segments of the San Fernando Fault Zone during this 1971 earthquake.

Oak Ridge Fault

The active Oak Ridge Fault is located in the Ventura Basin of which the segments extend for ~ 100 km from Santa Barbara to Piru. This fault is located about 2.5 miles north of the Newhall substation. The fault generally dips 65 degrees to 80 degrees south and is a steep south-dipping reverse fault that forms the boundary between Oak Ridge to the south and the Santa Clara River to the north (Ziony and Jones, 1989). According to DMG, 1996, the Oak Ridge Fault Zone has an estimated average slip rate of 4 mm/yr.

Activity along the Oak Ridge Fault is known to have occurred during the Pliocene time (5.3 million to 7.6 million years ago) and into the Pleistocene. The maximum credible earthquake is a moment M of 6.9 for both the eastern and western parts of this fault. The M 6.7 Northridge earthquake (in 1994) is thought to have occurred along the eastern end of the Oak Ridge fault (Yeates et al., 1995).

San Cayetano Fault

The San Cayetano Fault is a north-dipping reverse fault that runs along the north side of the Santa Clara River valley. The San Cayetano Fault is ~ 30 miles in length, running along the base of the Topa Topa Mountains from Piru Canyon to the Upper Ojai Valley, where it merges with the Lion Mountain and Sisar faults. Subsurface mapping by oil companies suggest as much as 20,000 feet of dip-slip displacement has occurred (Norris and Webb, 1990). The San Cayetano Fault is considered capable of generating an earthquake of Mw 7.3 and is zoned as active (Holocene) near the city of Fillmore, California, and along portions to the west.

San Gabriel Fault

The San Gabriel Fault, one of the principal structural elements of the Transverse Ranges, is a near vertical, right lateral, strike-slip displacement fault. This fault is a long break that extends from near Frasier Mountain, to near the Tejon Pass, near San Bernardino. The San Gabriel Fault is ~ 90 miles (145 km) in length, and trends obliquely across the mountains on a strike of about N65°W from the San Gabriel Mountains to Frazier Park and has been mapped as a part of the San Andreas fault system (Norris and Webb, 1990). This fault is an active fault that crosses the City of Santa Clarita ~ 5 miles north-northwest of the Proposed Project. According to the Special Publication 42, Interim Revision 2007, Fault Rupture

Hazard Zones in California, the Saugus-Newhall segment of the San Gabriel Fault Zone is included within an Alquist-Priolo Earthquake Fault Zone.

The San Gabriel Fault has been modeled as being capable of generating an earthquake of Mw 7.0 and is zoned as active between the city of Saugus and Castaic to the north of the Proposed Project (CGS, 2007). Dibblee (1992) has mapped the closest segment of the San Gabriel Fault (an actively zoned portion of the fault) less than 2.5 miles northeast of the Newhall substation.

Blind Thrust Fault Zone

Northridge Blind Thrust

The Northridge Blind Thrust, as defined by Petersen et al. (1994), is an inferred deep thrust fault that is considered the eastern extension of the active Oak Ridge fault and extends for ~ 27 km. From seismological and geodetic evidence, the Northridge Blind Thrust dips ~ 30 degrees to 40 degrees to the south, and trends roughly east-west. The zone of aftershocks defines a fault plane that is ~ 25 km to 30 km in length, extending to a depth of ~ 20 km beneath the city of Northridge. The Northridge Blind Thrust is located beneath the majority of the San Fernando Valley and is believed to be the causative fault of the January 17, 1994, Northridge earthquake. The Northridge Blind Thrust is not exposed at the surface and does not present a potential surface fault rupture hazard. However, this thrust fault is an active feature that can generate future earthquakes. Petersen et al. (1994) estimates an average slip rate of 1.5 mm/yr and a maximum M of 6.9 for the Northridge Blind Thrust.

Potentially Active Faults

Northridge Hills Fault

The central portion of the San Fernando Valley is transected by the Northridge Hills Fault, a north dipping reverse fault that may connect the Verdugo and Eagle Rock faults, segments of which have Holocene offsets (USGS, Ziony and Jones, 1988). The Northridge Hills Fault is a high-angle fault and its location is based primarily on the numerous petroleum test wells that have been drilled in the Northridge Hills located 4 miles southwest of the Proposed Project. The Northridge Hills constitute a series of discontinuous low lying hills that extend from near the town of Chatsworth east-southeast to the San Diego Freeway marks the crest of a south-vergent fault-propagation fold above the blind, north-dipping, 15-km-long Northridge Hills thrust (Tsutsumi and Yeats, 1999).

Logs of these wells indicate that the Modelo Formation has been displaced between 490 feet to 1,000 feet along the dip of the fault. The apparent movement along the fault has been dip-slip with the north block moving down. The apparent surface trace of the fault can be found in the Cretaceous Chico Formation north of Chatsworth (Weber, et al., 1980).

Geomorphic evidence, such as scarps in the Pleistocene age alluvial deposits, has been identified on aerial photographs. The fault is considered potentially active by Jennings (1994). However, a recent publication suggests that deformation of young sediments in the area could be related to movement along the Northridge Hills Fault (Baldwin et al., 2000).

Santa Susana Fault Zone

The Santa Susana Fault Zone (Type B fault) comprises a complex group of predominantly northwest trending, north-dipping reverse faults. The fault zone is ~ 23 miles long and runs from the eastern end of the Oak Ridge fault near Fillmore to the Sierra Madre and San Fernando faults to the east. This fault is a reverse fault that extends from the northern edge of Simi Valley through the northern end of the San Fernando Valley (City of Santa Clarita General Plan Safety Element, 1991).

The dip of the Santa Susana Fault is steep at depth and flattens to nearly horizontal (no dip) near the ground surface, resulting in a highly sinuous surface trace of the fault. The most recent movement on the fault has been estimated as Late Quaternary, except for a short segment in the San Fernando Valley which ruptured in the 1971 San Fernando earthquake and experienced surface displacements along its trace following the 1971 earthquake. Saul (1975) suggests that the Santa Susana Fault has been inactive since middle Pleistocene time. Surface displacements were mapped along its trace following the 1971 M_w 6.4 San Fernando earthquake. However, there is no evidence that this fault has offset Holocene age alluvial deposits partly because no movement was recorded on the fault plane where it is penetrated by numerous oil wells in the Plant Station (County of Los Angeles Seismic Safety Element, 1990). Ziony and Jones (1989) indicate that the fault is potentially active (i.e., no displacement of Holocene age alluvium). Additionally, Jennings (1994) indicates the fault is potentially active.

The Santa Susana Fault is considered capable of generating an earthquake of M M_w of 6.5 to M_w 7.3. According to DMG, 1996, the Santa Susana Fault Zone has an estimated average slip rate of 3 mm/yr. Both the 1971 and 1994 earthquakes are thought to have transferred strain on to the Santa Susana Fault (Globus, 2006). Yeats reports that oil well casings in the Aliso Oil Field were not sheared off during the 1971 earthquake. This fault is considered to be the most significant seismic source in the northern San Fernando Valley. It is mapped as an AP Earthquake Fault Zone as it crosses the northern portion of Aliso Canyon located ~ 0.5-mile east-southeast of the Proposed Project as shown on Figure 4.6-4.

Devonshire Fault

The Devonshire Fault is located ~ 1.7 miles southwest of the Proposed Project site, south of the Horse flat syncline geological structure, and cuts Limekiln Canyon 1-mile north of the 118 Freeway. This steep fault has the potential to produce a maximum credible earthquake M_w of 7.0. This is a high angle thrust fault dipping south. The upper sediments are mapped as slopewash. Since the Devonshire Fault thrusts over older alluvium, the Devonshire Fault is thought to be pre-Holocene, which makes the fault older than 10,000 years. Currently, the CGS classifies this fault as inactive but may be presumed to be potentially active.

Holser Fault

The Holser Fault, lying to the east of the San Cayetano fault, is an east-west trending reverse fault ~ 12 miles in length with an estimated vertical separation of about 2,600 feet (Jennings, 1994). The Holser fault trends along the northern border of the Santa Clara River Valley and has not been determined to run through the city of Santa Clarita. The Holser Fault is known to offset Pleistocene-aged/sediments of the Saugus formation but is buried beneath Quaternary-aged terrace deposits at its eastern end near the San Gabriel fault.

There is no evidence that this fault has offset Holocene age alluvial deposits (County of Los Angeles Seismic Safety Element, 1990). Ziony and Jones (1989) indicate that the fault is potentially active (no displacement of Holocene age alluvium). Additionally, Jennings (1994) indicates the fault is potentially active.

The Holser Fault is probably related to the San Cayetano fault but has a different sense of movement (i.e., south-side up movement on the Holser Fault versus north side up on the San Cayetano fault). The Holser fault has not been zoned as active by the CGS AP. The inferred trace of the Holser Fault is located ~ 2.5 miles north of the Newhall substation. It is modeled as being capable of generating a maximum moment of M 6.5 (City of Santa Clarita, General Plan, Safety Element, 2007).

Seismicity

The development of seismic input parameters for structural design requires knowledge of the faults surrounding the site, the magnitude of earthquakes that each fault can generate, and the attenuation or magnification of ground acceleration that may occur at a given site if an earthquake occurs along a particular fault. Research of historical earthquake events that have occurred in the general study area as well as a deterministic and probability evaluation of seismic parameters for potential on-site ground motion consideration can be readily performed with computer data bases and associated software, such as computer programs EQSEARCH, EQFAULT, and FRISK89 (Blake, 2000). Two terms used to describe earthquakes are MCE and maximum probable earthquake (MPE). The MCE refers to the maximum earthquake that appears capable of occurring under the presently known tectonic framework. The MPE refers to the maximum earthquake that is likely to occur during a 100-year interval and is often used in design of earthquake resistant structures. For example, the MCE that may impact the Proposed Project due to the Holser Fault is M 6.75 while the MPE is M 6.25. The computed largest credible peak acceleration that may impact the Proposed Project is 0.82 amount of ground shaking (g), while the computed largest probable peak acceleration is 0.7488g. The computed largest credible repeatable high ground acceleration that may impact the Proposed Project is 0.54g, while the computed largest probable repeatable high ground acceleration is 0.49g.

It has been indicated that the Proposed Project is within a zone of concentrated ground breakage during the 1994 Northridge earthquake (CGS, 1995).

Seismic Risk Zones have been developed based on the known distribution of historic earthquake events, evidence of past earthquakes, proximity to earthquake areas and active faults, and frequency of earthquakes in a given area. These zones are generally classified using either the CGS (formerly California Division of Mines and Geology) Maximum Expected Earthquake Intensity Map or the Uniform Building Code (UBC) Seismic Risk Map of the United States.

Geologic Hazards

Areas most susceptible to intense ground shaking are those located closest to the earthquake generating fault, as well as areas underlain by thick, loosely unconsolidated and water saturated sediments. Ground movement during an earthquake can vary depending on the overall magnitude, distance from the fault, focus of the earthquake energy, and type of geologic materials underlying the Proposed Project (CGS, 1995).

Magnitude is the measure of energy released in an earthquake, while intensity measures the ground shaking effects at a particular location. Ground shaking intensity varies substantially depending on underlying substrate at a particular location. Areas atop bedrock typically experience less severe ground shaking than those underlain by loose, unconsolidated materials. The entire Proposed Project would likely be subject to strong ground shaking in the event of a major earthquake in the Proposed Project region (CGS, 1995).

Landslide

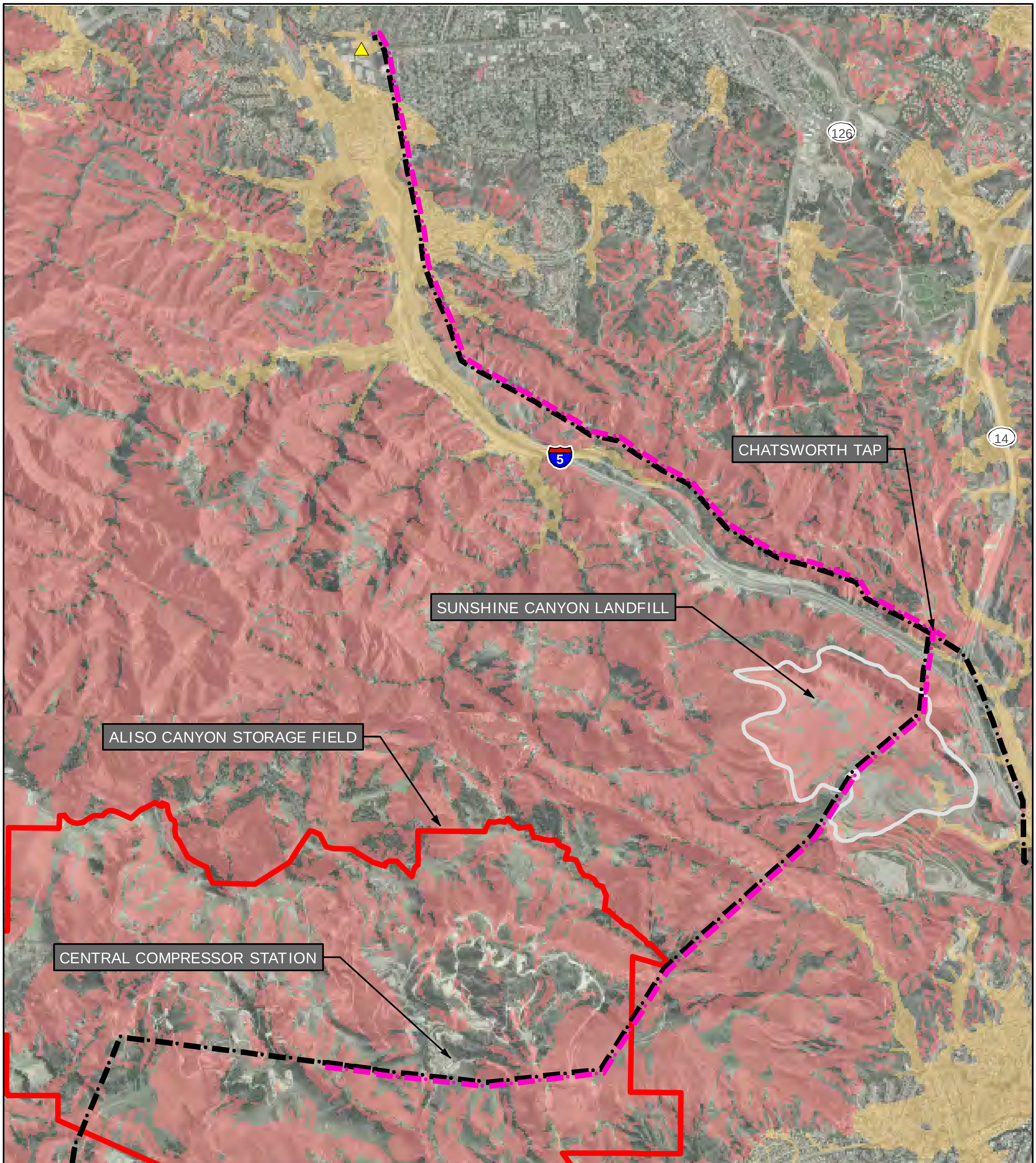
Landslides are masses of rock, soil, and debris displaced down-slope by sliding, flowing, or falling. Areas of landsliding are, in general, confined to the areas of weak or clay bedrock and adverse geologic structure (such as bedding, joints or fracture planes dipping in downslope directions). Slides can result from certain geologic features, slope steepness, excessive rainfall, earthmoving disturbance, and seismic activity. Excavation and development activities often increase the incidence of landslides. Shaking during an earthquake may cause materials on a slope to lose cohesion and collapse. Potential earthquake-induced landslide areas are shown on Figure 4.6-5.

According to the State of California, Seismic Hazard Zone, Oat Mountain Quadrangle Seismic Hazard Zones, Earthquake-induced Landslides (DMG, 1998), the Proposed Project does not lie within an Earthquake-induced Landslide Zone. However, the surrounding area along the existing 66 kV sub-transmission alignment crosses several of these landslide features. The 1994 Northridge earthquake triggered more than 11,000 landslides over an area of 10,000 square kilometers (km^2). Most of the landslides were concentrated in a 1,000 km^2 area that includes the Santa Susana Mountains and the mountains north of Santa Clara River Valley. Most of the triggered landslides were at shallow depths of ~ 1-m to 5 m.

According to the DMG report #87-8 LA for the North Half Oat Mountain Quadrangle (Treiman, J., 1987), landslide susceptibility and debris flow map #10, landslides typically occur on steep or unstable slopes. Portions of the Proposed Project traverse hills and slopes that may be susceptible to landslides both seismically and aseismically induced. These landslides occur in areas with steep and unstable slopes. The unstable and steep slopes in the area could experience rapid earth movement in the form of a landslide with or without a seismic trigger.

The following segments of the proposed SCE 66 kV sub-transmission modification may be susceptible to landslides based on slope and soil types (USDA, 2008):

- Newhall substation to I-5 crossing
- I-5 crossing to proposed SCE Natural Substation
- Proposed SCE Natural Substation to proposed Central Compressor Station
- South of proposed Central Compressor Station



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Aliso Canyon Storage Field
- Potential Liquefaction Area
- Potential Landslides Area
- Existing SCE Substation

1 inch = 3,500 feet

0 3,500 7,000 Feet

N W E S

Aliso Canyon PEA
Figure 4.6-5
Areas of Potential Earthquake-Induced Landslides and Liquefaction

Source:.State of California, DMG, Seismic Hazard Zone, Oat Mountain Quadrangle Seismic Hazard Zones, February 1,1998)

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soil behaves similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when the following exists: (1) shallow groundwater; (2) low-density, fine, clean sandy soil; and (3) high-intensity ground motion.

Liquefaction involves a sudden loss in strength of a saturated, cohesionless soil (predominantly sand) caused by cyclic loading such as an earthquake. This phenomenon results in elevated pore-water pressures that temporarily transform the soil into a fluid mass resulting in vertical settlement and could include lateral deformations. Typically, liquefaction occurs in areas where groundwater is less than 50 feet from the surface and where the soil consists predominantly of poorly consolidated sands. Seismic ground motions can also induce settlement without liquefaction occurring, including within dry sands above the water table.

The potential for liquefaction to occur depends on both the susceptibility of a soil to liquefy and the opportunity for ground motions (shaking) to exceed a specified threshold level. Depending upon specific soil conditions, such as density, uniformity of grain size, confining pressure and saturation of the soil materials, a certain intensity of groundshaking is required to trigger liquefaction. Ground shaking intensity depends on the magnitude, distance and direction from the Proposed Project, depth, and type of earthquake, the soil and bedrock conditions beneath the Proposed Project, and the topography of the Proposed Project and vicinity.

According to the State of California, Seismic Hazard Zone, Oat Mountain Quadrangle Liquefaction Zone (DMG, 1998), the Proposed Project does not lie within a Liquefaction Zone (areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required). Potential earthquake-induced liquefaction areas are shown on Figure 4.6-5.

Land Subsidence

Land subsidence is normally the result of fluid withdrawal such as groundwater and/or oil extraction or other mining activities have created subsurface voids, resulting in the sinking of the ground surface. When fluid is withdrawn, the effective pressure in the drained sediments increases. Compressible sediments are then compacted due to overlying pressures no longer being compensated by hydrostatic pressure from below. Subsidence and associated fissuring have occurred in a variety of places due to fluctuating (rising and falling) groundwater tables. There are several basins within the Transverse Ranges, including the San Fernando Basin and Ventura Basin, noted for petroleum production.

The Proposed Project is located within an area of known subsidence associated with fluid withdrawal (ground water or petroleum), peat oxidation, or hydrocompaction. Subsidence in the Proposed Project area would be primarily associated with the withdrawal of petroleum fluids (oil and gas) from the sedimentary strata located within the Aliso Canyon Oil Field. Alluvial valley regions, such as the San Fernando Valley located just south of the Proposed Project are particularly susceptible to subsidence (Source: County of Los Angeles General Plan, 1990).

Even though both groundwater and petroleum have been removed from the ground, there is no evidence that significant subsidence has occurred, or may occur in the future, in the project vicinity. The likelihood of seismically induced settlement is, therefore, considered to be remote.

Expansive Soils

Expansive soils contain significant amounts of a specific type of high-plasticity clay (smectite) that expands when it becomes wet and shrinks upon drying, resulting in volume changes in the soil column. Expansive soils are generally fine grained soils with an appreciable amount of smectitic clay. A quantitative assessment of the expansion potential of the soils was not performed for this study. General expansive characteristics of soil that may be encountered along the alignment of the existing 66 kV sub-transmission system were obtained from the USDA soil survey estimated soil properties tables. Based on soil descriptions, the soils in the Proposed Project have a low to moderate shrink/swell potential, and therefore, there is no significant potential for presence of expansive soils within the near surface.

4.6.1.3 Applicable Laws, Regulations and Standards

Federal Plans, Policies, Regulations, and Laws

The 1997 Uniform Building Code (UBC) specifies acceptable design criteria for structures with respect to seismic design and load bearing capacity. Seismic Risk Zones have been developed based on the known distribution of historic earthquake events and frequency of earthquakes in a given area. These zones are generally classified on a scale from I (least hazard) to IV (most hazard). These values are used to determine the strengths of various components of a building required to resist earthquake damage. Based on the UBC Seismic Zone Maps of the United States, and because of the number of active faults in southern California, the Proposed Project is located in the highest seismic risk zone defined by the UBC standard, as UBC Zone IV. The State has adopted these provisions in the California Building Code (CBC).

State/County Plans, Policies, Regulations, and Laws

The Proposed Project is subject to the applicable sections of the CBC. The county of Los Angeles is responsible for implementing the CBC for certain structures associated with the Proposed Project. Regardless of whether or not the Proposed Project is located within an AP seismic zone, certain Proposed Project structures must be designed in accordance with the requirements of the CBC and UBC Zone IV because the Proposed Project is located in a seismically active area. The CBC and UBC are considered to be the standard safeguards against major structural failures and loss of life. The goals of the codes are to provide structures that will: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage but with some non-structural damage; and 3) resist major earthquakes without collapse but with some structural and non-structural damage. The CBC and UBC requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. In addition, the County of Los Angeles General Plan, Seismic Safety Element (Draft 2008), includes standards and plans to reduce the loss of life, injuries, damage to property, and economic and social dislocations resulting from natural and urban related hazards.

For the SCE components of the Proposed Project, SCE will comply with certain industry standards and CPCU General Orders. Similarly, the Proposed Project subtransmission line modifications would be designed consistent with CPUC G.O. 95, while the substation would be designed consistent with the Institute of Electrical and Electronics Engineers,(IEEE) Standard 693, Recommended Practices for Seismic Design of Substations.

4.6.2 Significance Criteria

The significance criteria for assessing the impacts of geology, soils and seismicity come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent AP Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication No. 42.
  - Strong seismic ground shaking?
  - Seismic-related ground failure, including liquefaction?
  - Landslides?
- Result in substantial soil erosion or the loss of topsoil?
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- Be located on expansive soil, as defined in Table 18-1-B of the UBC (1994), creating substantial risks to life or property?
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

4.6.3 Applicant Proposed Measures

The following APMs will be implemented as part of the Proposed Project design:

APM-GS-01: Construction phase procedures and the engineering design and operational procedures for the proposed Central Compressor Station will incorporate measures for fire prevention and detection in order to lower the risk of initiating wildland fires.

APM-GS-02: Construction procedures will be conducted as discussed in the recommendations section of the Preliminary Geotechnical Investigation Report prepared by Globus, 2006, in order to mitigate impacts related to unstable geologic conditions. In addition, a site-specific geotechnical investigation is proposed which will provide information on the potential geological hazards.

APM-GS-03: SoCalGas will build all structures and facilities in compliance with the requirements of the State of California and according to UBC standards for Seismic Risk Zone IV.

4.6.4 Environmental Impacts

The potential impact to geology, soils, and seismicity from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential geology, soils, and seismicity resource impacts, CEQA criteria were evaluated and are discussed separately for construction and operations.

This impact analysis is based on the assumption that all structures and facilities will be constructed according to UBC standards for Seismic Risk Zone IV to minimize the potential for injury caused by structural failure from primary and secondary hazards during an earthquake.

Construction Impacts

Would the Proposed Project expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42); strong seismic ground shaking?

The Proposed Project is not located within a currently established AP Earthquake Fault Zone for surface fault rupture hazards. However, the closest AP Earthquake Fault Zone is the Santa Susana fault located less than 1-mile to the east-southeast of the Proposed Project, east of the Aliso Canyon area, and southeast of the water tank; and it intersects the proposed PPL, ~ 0.33-mile south of I-5 (200 feet southwest of Mile 7-Pole#4452277). Movement on the Santa Susana fault zone could cause extensive damage via ground rupture and strong seismic ground shaking. Ground rupture associated with the 1971 San Fernando earthquake occurred less than 1-mile southeast of the Proposed Project (Globus, 2006). According to the AP fault zoning map, the zone terminates just east of the Proposed Project. However, a note on the map indicates that the fault zone extends to the west, but is not yet evaluated for zoning purposes. It may be re-evaluated/revised in the future when warranted by new fault data. Displacement on nearby faults, such as the Oak Ridge fault (1994) and San Fernando fault (1971), could also cause extensive ground shaking if a major earthquake would occur.

In addition, the Weldon Canyon fault intersects the alignment of the existing 66 kV sub-transmission system near The Old Road, at the I-5. According to CGS, this fault is inactive.

The Proposed Project components which could be affected by strong seismic ground shaking are:

- Segment from Newhall substation to I-5 crossing of the proposed SCE 66 kV sub-transmission modification
- Segment from the I-5 crossing to the proposed SCE Natural Substation, of the proposed SCE 66 kV sub-transmission modification
- Proposed Central Compressor Station
- Proposed SCE Natural Substation Site
- Proposed Trailer Relocation Site
- Proposed SCE 66 kV sub-transmission modification at the San Fernando Substation tap

SCE will implement appropriate seismic engineering considerations for the substation facilities in accordance with the IEEE 693, Recommended Practices for Seismic Design of Substations. Further, SCE will design and construct sub-transmission line modifications consistent with CPUC G.O. 95 to withstand seismic loading. The Proponent, at a minimum, will build all structures in compliance with the requirements of the State of California and the UBC; these standards were developed to minimize exposure of people, structures, or property to geologic hazards. Any additional recommendations made in supplemental geologic studies currently underway will be incorporated into building design to maximize structural integrity of buildings during an earthquake. Future proposed critical structures identified as straddling the Santa Susana fault will be relocated, if possible, or strengthened to withstand the effects of ground shaking resulting from a MPE.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project result in substantial seismic-related ground failure, including liquefaction?

According to the State of California, Seismic Hazard Zone, Oat Mountain Quadrangle Seismic Hazard Zones, Liquefaction (DMG,1998), the Proposed Project does not lie within a seismic related Liquefaction Zone.

Studies indicate that saturated, loose and medium dense, near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. According to the State of California, Seismic Hazard Zone, Oat Mountain Quadrangle Liquefaction Zone (DMG, 1998), the Proposed Project does not lie within a seismic related Liquefaction Zone. However, localized areas where shallow groundwater (~10 feet bgs) were observed in the excavated trenches identified in the Globus Geotechnical Investigation Report (Globus, 2006).

According to the CGS Seismic Hazard Zone map, San Fernando Quadrangle, the San Fernando substation is not located within a liquefaction zone. Therefore, the installation the intrusive work to include the removal of existing four towers followed by the installation of four engineered TSPs will not encounter liquefaction zones.

SCE will implement appropriate seismic engineering considerations for the substation facilities in accordance with the IEEE 693, Recommended Practices for Seismic Design of Substations. Further, SCE will design and construct sub-transmission line modifications consistent with CPUC G.O. 95 to withstand seismic loading. SoCalGas, at a minimum, will build all structures in compliance with the requirements of the State of California and the UBC; these standards were developed to minimize exposure of people, structures, or property to geologic hazards. Recommendations, of the Geotechnical Investigation Report prepared for the Proposed Project by Globus (2006), shall be implemented during Proposed Project construction. Any additional recommendations made in supplemental geologic studies currently underway will be incorporated into building design to maximize structural integrity of buildings during an earthquake.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project result in substantial landslides?

The Proposed Project does not lie within a potential earthquake-induced landslide. The earthquake-induced landslide hazard feature mapped by the CGS indicates that landslides may occur around the Proposed Project in nearby areas where hills and unstable slopes may be susceptible to landslides both seismically and aseismically induced. The unstable slopes in the area could experience rapid earth movement in the form of a landslide, debris flow or rock glides. According to CGS, there are numerous earthquake-induced landslide features mapped along the alignment of the existing 66 kV sub-transmission system and several Proposed Project components that are associated with the geologic units of the Pico formation which are subject to widespread large- and small-scale bedrock and surficial landslides, and with the Monterey (Modelo) Formation which are subject to large- and small-scale landslides.

The relatively irregular topography surrounding the Proposed Project includes both stability problems and the potential for lurching, which is earth movement at right angles to a cliff or very steep slope during ground shaking. Based on slope and soil types, the following Proposed Project components may be susceptible to landslides and are as follows:

- Segment from Newhall Substation to the I-5 crossing, of the proposed SCE 66 kV sub-transmission modification
- Proposed SCE 66 kV sub-transmission modification, segment from I-5 crossing to proposed SCE Natural Substation
- South of proposed Central Compressor Station

A site-specific geotechnical investigation would provide information on the landslide hazard, and provide recommendations for either stabilization of the landslide, and/or reinforcement requirements for the sub-transmission structures.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project result in substantial soil erosion or the loss of topsoil?

During construction of new facilities at the Proposed Project, earth moving operations could increase the potential for short-term soil erosion and loss of topsoil. The storage and movement of soil greatly affects the amount of erosion that occurs. If soil is improperly stored or transported, wind and water can erode the soil. The Proposed Project has been mapped as having potential for slight to severe erosion. The results of the geotechnical investigation conducted by Globus (2006) prior to construction of the Proposed Project would identify the need for any permanent erosion control measures that would be specified in the SWPPP and grading permit obtained from the county of Los Angeles. Impacts are, therefore, expected to be less than significant.

During construction, erosion control measures would be implemented, utilizing BMPs, to avoid or minimize soil erosion and off-site deposition. Because soil surface disturbance for the Proposed Project is estimated to be greater than 1-acre, specific erosion control measures would be identified as part of the Storm Water General Permit issued by the State Water Resources Board and a SWPPP required for construction of the Proposed Project. The SWPPP must be administered throughout Proposed Project construction.

Soil erosion and loss of topsoil would be minimized by the implementation of BMPs that would be provided in the SWPPP prepared for the Proposed Project. Refer to Parsons SWPPP/Monitoring Program (Parsons, 2001), included in Appendix B.3.

In addition, it is assumed that a grading permit will be obtained from the county of Los Angeles that would include surface improvements that would minimize soil erosion and the loss of topsoil at the Proposed

Project. The Proposed Project preparation, design and construction in compliance with the SWPPP and the grading permit would make impacts due to soil erosion and loss of topsoil less than significant. Construction of proposed facilities would cause minor changes to topography. Proper design and precautions taken during construction and operation of facilities will prevent any potential impacts.

No exceptional difficulties due to soil conditions are anticipated during planned excavations at the site. Shoring would need to be used for vertical excavations at the site. It is anticipated that the earth materials at the Proposed Project can be excavated with conventional earth-moving equipment. Since the soil will be excavated at depths greater than 5 feet, a Cal-OSHA Excavation/Trench Permit will need to be obtained from the California, Department of Industrial Relations, Division of Occupational Safety & Health.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

SoCalGas is proposing to increase the injection (flow) rate from 300 MMcfd to 450 MMcfd to maximize their gas storage capacity during periods of higher demands and use during the summer months. According to engineering analysis obtained from SoCalGas storage engineer, the increase of gas injection rates will not affect the subsurface geological formation since the gas storage volume will remain the same (84 BCF), and the geologic units will not become unstable.

The existing artificial materials beneath the proposed Central Compressor Station portion of the Proposed Project are underlain by non-engineered fills of generally poor quality that will not meet current UBC requirements. The majority of the fill materials encountered in the soil borings appear to be imported from off-site locations (Globus, 2006). Typically, these fine-grained fill materials have undesirable properties for grading and foundation support (Globus, 2006). The Proposed Project development will require significant mass grading, remove, rework, over-excavate and bind the soil to improve the quality of the fills.

Even though both groundwater and petroleum have been removed from the ground, there is no evidence that significant subsidence has occurred, or may occur in the future, in the Proposed Project vicinity. The likelihood of seismically induced settlement is, therefore, considered to be remote. Therefore, the potential for subsidence is low and impacts would be less than significant.

Studies indicate that saturated, loose and medium dense, near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. The Proposed Project is not located within a mapped liquefaction hazard zone. Groundwater was encountered in 5 of the 9 soil borings at depths of ~ 9 feet to 37 feet bgs and appears to be related to inadequate drainage or deficiencies related to filling of the pre-existing canyons and drainages (Globus, 2006). Due to relatively high fine contents and intermediate clayey soil layers, potential for liquefaction is considered low and impacts would be less than significant.

Liquefaction may also cause lateral spreading. For lateral spreading to occur, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area. However, if lateral containment is present for those zones, then no significant risk of lateral spreading will exist. Since the liquefaction potential at the Proposed Project is low, earthquake-induced lateral spreading is not considered to be a seismic hazard at the Proposed Project and impacts would be less than significant.

The following measure was recommended in the Preliminary Geotechnical Investigation Report (included in Appendix B.3), prepared by Globus (2006), for the Proposed Project to mitigate impacts related to unstable geologic conditions to a less than significant level:

- Geotechnical recommendations for foundation scheme contained on page 13 and in the proposed Phase Two Geotechnical investigation discussed on page 23 of the report.

While project development would not result in the hazards addressed above, the Preliminary Geotechnical Investigation Report (Globus, 2006) recommendations prepared for the Proposed Project shall be implemented as mitigation.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Based on soil descriptions, the soils in the Proposed Project have a low to moderate shrink/swell potential as shown in Table 4.6-2. According to Globus (2006),, clayey materials at the location of the proposed Central Compressor Station can be moisture sensitive (both collapsible and expansive). The soils observed in the borings and test pits sampled near the Compressor Station generally consisted of artificial fill with deeper, moisture sensitive, clayey soils which were at a lesser compaction level. These materials may be encountered during the proposed Phase Two Geotechnical investigation (refer to Chapter 3.0 Project Description, for more information).

The San Fernando substation is located near the intersection of San Fernando Mission Boulevard and Sepulveda Boulevard, in the city of San Fernando, specifically on the northwest corner of the I-5 Freeway and Sepulveda Boulevard ~ 0.75-mile east of the 405 Freeway.

The intrusive work at this substation will include the removal of existing two towers and installation of four new TSP poles. The structure foundation process would start with the auguring of the boreholes for each pole using various diameter augers to match diameter requirements of the foundation sizes. TSPs typically require an excavated hole of up to 10 feet in diameter and 20 feet to 60 feet bgs. The soils to be encountered at the San Fernando substation during the TSP installation would consist of alluvial gravels, sand, silts and clays. These materials may possess expansive properties.

The proposed Phase II geotechnical investigation (Globus, 2006) would offer the Proposed Project-specific project design and construction recommendations, such as over-excavation of soil, conducting proper compaction tests, expansive testing, and removal of these incompatible soils at the construction site to minimize any effects due to the presence of expansive soils. With construction of the Proposed Project in accordance with the CBC and the implementation of the recommendations of the initial geotechnical investigation conducted by Globus, the impacts from expansive soils within the near surface would be less than significant.

Would the Proposed Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impacts are expected. The Proposed Project would not construct septic tanks, and use of existing septic tanks during construction is not anticipated, as workers would use portable toilets. Waste would be pumped out by qualified contractors and disposed of in accordance with all applicable regulations and codes.

Based on the above, the Proposed Project's impacts are less than significant.

Operation Impacts

Would the Proposed Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42?

The Proposed Project is not located within an established AP Earthquake Fault Zone or designated Fault-Rupture Hazard Zone for surface fault rupture hazards. Operation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving rupture of a known earthquake fault.

Based on the available geologic maps reviewed, the closest identified fault (Santa Susana fault) to the Plant Station is located adjacent to, and east of the Aliso Canyon area, southeast of the water tank and the proposed PPL. There is no evidence that this fault has offset Holocene age alluvial deposits (County of Los Angeles Seismic Safety Element, 1990). Ziony and Jones (1989) indicate that the fault is potentially active (no displacement of Holocene age alluvium). Additionally, Jennings (1994) indicates the fault is potentially active.

Due to its proximity to an active fault zone, the Proposed Project would experience moderate to high levels of earthquake-induced ground shaking. Even though the Proposed Project is located in an area susceptible to earthquake forces, the structures would not be utilized for human occupancy and would be designed consistent with the IEEE 693, Recommended Practices for Seismic Design of Substations. Similarly, the proposed PPL and SCE's sub-transmission line modifications would be designed and constructed consistent with CPUC GO 95 to withstand seismic loading.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving Strong seismic ground shaking?

The entire Proposed Project would likely be subject to strong seismic ground shaking in the event of a major earthquake originating along one of the faults listed as active or potentially active in the Proposed Project region. The operation of the Proposed Project would expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving strong seismic ground shaking.

Components of the Proposed Project which could be affected by strong seismic ground shaking are:

- Proposed SCE Natural Substation Site
- Proposed Central Compressor Station site and proposed office trailer relocation.

Movement on the Santa Susana Fault zone could cause extensive damage via ground rupture and strong seismic ground shaking. Also, displacement on nearby faults, such as the Northridge fault (1994) and San Fernando fault (1971), could also cause extensive ground shaking if a major earthquake would occur. However, this geological hazard is common in southern California and the effects of ground shaking can be mitigated by proper engineering design and construction in conformance with current building codes and engineering practices. Impacts are, therefore, expected to be less than significant.

SCE will implement appropriate seismic engineering considerations for the substation facilities in accordance with the IEEE 693, Recommended Practices for Seismic Design of Substations. Further, SCE will design and construct subtransmission line modifications consistent with CPUC G.O. 95 to withstand seismic loading. SoCalGas, at a minimum, will build all structures in compliance with the requirements of the State of California and the UBC; these standards were developed to minimize exposure of people, structures, or property to geologic hazards. Any additional recommendations made in supplemental geologic studies currently underway will be incorporated into building design to maximize structural integrity of buildings during an earthquake. Future proposed critical structures identified as straddling the Santa Susana fault will be relocated, if possible, or strengthened to withstand the effects of ground shaking resulting from a MPE.

Would the Proposed Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving Seismic-related ground failure, including liquefaction?

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when the following exists: (1) shallow groundwater; (2) low-density, fine, clean sandy soils; and (3) high-intensity ground motion. Studies indicate that saturated, loose and medium dense, near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. According to the State of California, Seismic Hazard Zone, Oat Mountain Quadrangle Liquefaction Zone (DMG, 1998), the Proposed Project does not lie within a seismic related Liquefaction Zone.

Based on the above, the Proposed Project’s impacts are less than significant.

Would the Proposed Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving Landslides?

The topography of the Proposed Project and the immediate built environment is irregular and has an abundance of distinctive landforms. As indicated above, there are significant ground slopes, and there were several known landslides in the vicinity of the Proposed Project. The Proposed Project, however, is not located in the path of any known or potential landslides and therefore, the impact will be less than significant.

Based on the above, the Proposed Project’s impacts are less than significant.

Would the Proposed Project result in substantial soil erosion or the loss of topsoil?

During the Proposed Project, wind and water driven erosion of soils due to grading activities might be of concern if soil is stockpiled or exposed during construction. However, this impact is considered short-term in nature since the potential for significance will end after construction is finished due to covering the area of the Proposed Project with pavement and landscaping.

Further, as part of the Proposed Project, the applicant would be required to adhere to conditions under the facility SWPPP. In addition, SoCalGas will develop a construction SWPPP and update the existing SWPPP including the applicable Proposed Project components., The SWPPP includes project information; monitoring and reporting procedures; and BMPs, such as dewatering procedures, storm water runoff quality control measures (boundary protection), spill reporting, and concrete waste management, as applicable to the project, to ensure that potential water quality impacts from water erosion would be reduced to less than significant. The SWPPP would be based on final engineering design and would include all Proposed Project components. Site preparation, design and construction in compliance with the SWPPP and the county of Los Angeles grading permit would make impacts due to soil erosion and loss of topsoil less than significant.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

Prior to operation of facilities, a Phase II geotechnical investigation would have been conducted to provide site-specific details of unstable geologic units. The Proposed Project would incorporate the geotechnical information into the proper design and precautions in order to ensure the safe and reliable operation of the Proposed Project.

Based on the above, the project's impacts are less than significant.

Would the Proposed Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Because the substations would not be equipped with an on-site wastewater disposal system, there would be no impact to soils as a result of using a septic tank drainfield. The Proposed Project would connect to and use the City's existing sewage conveyance system. Therefore, based on the above, the Proposed Project's impacts are less than significant.

4.6.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** due to construction and operation; therefore no mitigation is required or proposed.

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4.7 Hazards and Hazardous Materials

This section describes potential hazards associated with construction and operation of the Proposed Project, excluding the geological hazards discussed in Section 4.6 Geology Soils and Seismicity, however, including hazardous materials use during construction, the likelihood of encountering historical soil or groundwater contamination during construction, and fire hazards. The impacts and mitigation measures, where applicable, are also discussed.

Project components that do not involve ground disturbance; do not feature material use of hazardous materials in construction or operation; or could clearly not materially interact with airports, airstrips, schools or wildland fire considerations; were not assessed. These components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations and construction support activities.

4.7.1 Existing Setting

4.7.1.1 Hazardous Materials in Surface and Subsurface Soil

Environmental Data Resources' (EDR) EDR OnDemand™ service and the California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC) ENVIROSTOR database were utilized to examine the locations of the Proposed Project where soil disturbance will occur. These consist of the SCE Newhall Substation; the existing SCE 66 kV sub-transmission alignment; the SCE San Fernando Substation; and eight locations within the Storage Field (proposed SCE Natural Substation, the proposed PPL, the proposed Central Compressor Station, the proposed office trailer location, the Porter 32 and Porter 47 staging areas, the Porter 27 soil processing area and the Porter Fee Road staging area). EDR's and DTSC's databases identify locations of hazardous materials and waste storage and release as contained in various Federal, State and local databases. EDR also compiles information from several private and proprietary sources.

The Storage Facility, including the Plant Station, Storage Field, and gathering plants, is identified in various databases as a hazardous material and waste handling location, consistent with the descriptions in the following subsection.

The database search also identified the Storage Facility as the location of four reported releases, as follows:

- A 1996 release of contaminated water when heavy equipment struck an aboveground line.
- The rupture of an aboveground crude oil storage tank during the 1994 Northridge earthquake that spilled a large volume of oil, mostly within the bermed area surrounding the tank.
- A 1996 oil spill resulting from a leaking flange on the Porter #2 well. The oil released was contained in a storm water catch basin.
- A 2007 cleanup at catch basin #3.

All of these releases were cleaned up, and none occurred within an area which will be graded as part of the Proposed Project.

The database search also indicated the presence of a “National Aeronautics and Space Administration (NASA) Area 2” within the Proposed Project vicinity. This is reportedly a former NASA facility located on Oat Mountain, located to the northwest and well away from any area to be disturbed as part of the Proposed Project.

SoCalGas correspondence from 2002 also indicates that there is a potential for contaminated soil near the Sesnon Fee 2 sump (J. Steve Rahon to Public Utilities Commission of the State of California, July 17, 2002). This location is also distant from any of the Proposed Project areas listed above.

Based on historical and operational knowledge of the facility provided by SoCalGas personnel, hazardous materials could potentially be present in subsurface soil at the proposed office trailer location; this was reportedly the location of a tank farm associated with Aliso Canyon oil production. Based on the oil production history of the Aliso Canyon facility, materials could potentially be present in soil at other locations, but there is no specific historical, operational or other knowledge suggesting this.

No hazardous materials or waste storage or release locations were identified within or immediately adjacent to the existing 66 kV sub-transmission alignment.

The Newhall and San Fernando Substations are both identified in the database searches as having generated hazardous wastes in the past under temporary generator identification numbers. Neither existing substation location was identified as a location where a hazardous substance or waste has been released to soil. There are also no abutting properties to either substation where a soil release is recorded in the databases.

In addition to the database searches, current aerial and street level photographs and topographic maps were reviewed for the entire area of the Proposed Project, and a site walkover was performed of several areas including each area within the Storage Facility. These activities were performed to help visually identify areas, conditions or land uses consistent with a potential for surface soil contamination or conditions that would arouse suspicion for potential soil contamination. No such areas were identified.

4.7.1.2 Hazardous Materials Handling and Storage

Table 4.7-1 summarizes the types of hazardous materials and wastes currently used within each area of the Proposed Project; materials which would be utilized or generated during Proposed Project construction activities; and materials and wastes which would be present during Proposed Project operation.

Table 4.7-1 Hazardous Materials and Waste

Proposed Project Area or Activity	Current Hazardous Materials and Wastes Used During Operation	Hazardous Materials and Wastes Used or Generated During Proposed Project Construction	Hazardous Materials and Wastes Anticipated During Proposed Project Operation
VFD for proposed Central Compressor Station	Not Applicable	Diesel fuel and/or gasoline (for vehicles and construction equipment); minor vehicle maintenance and construction chemicals. Soil contaminated with waste oil or gas condensates.	Natural gas (within compressors and piping); lubricating oils (within equipment); minor maintenance chemicals. Waste oil, gas stream condensates, oily debris, minor trash and metal scrap.
Office trailer relocation	Minor household chemicals.	Demolition debris (metal, wood, sheetrock, asphalt/concrete paving.) Fuels, minor vehicle maintenance and construction materials, soil contaminated with waste oil or gas condensates.	Same as current.
Staging areas and soil processing site	Occasional temporary small quantities of corrosion chemical for well servicing.	Diesel fuel and/or gasoline (for vehicles and construction equipment); minor vehicle maintenance and construction chemicals.	Not Applicable (temporary use areas only).
Guard House	none	Demolition debris (asphalt, soil, sheetrock, asphalt/concrete paving.) Fuels, concrete, scrap steel from old poles.	Same as current
Proposed SCE 66 kV sub-transmission modification	none	Fuels, concrete, minor vehicle maintenance and other construction materials. Waste soil, scrap steel from old poles.	Minor maintenance chemicals.
Proposed PPL	none	Fuels, concrete, minor vehicle maintenance and other construction materials. Waste soil, waste treated wood poles/components.	Minor maintenance chemicals.

Proposed Project Area or Activity	Current Hazardous Materials and Wastes Used During Operation	Hazardous Materials and Wastes Used or Generated During Proposed Project Construction	Hazardous Materials and Wastes Anticipated During Proposed Project Operation
SCE Newhall Substation	Transformer oil (electrical transformers; sulfur hexafluoride (SF_6) (circuit breakers); battery acid (battery backup systems); minor maintenance chemicals (paints, lubricants, gases); waste transformer oil; oily debris; universal wastes (waste batteries, fluorescent lights); minor trash and metal scrap.	Diesel fuel and/or gasoline (for vehicles and construction equipment); minor vehicle maintenance and construction chemicals.	Same as current.
Proposed SCE Natural Substation	Not Applicable	Diesel fuel and/or gasoline (for vehicles and construction equipment); minor vehicle maintenance and construction chemicals; transformer oil.	Transformer oil (electrical transformers; SF_6 (circuit breakers); battery acid (battery backup systems); minor maintenance chemicals (paints, lubricants, gases); waste transformer oil; oily debris; universal wastes (waste batteries, fluorescent lights); minor trash and metal scrap.
SCE Chatsworth Substation	Transformer oil (electrical transformers; SF_6 (circuit breakers); battery acid (battery backup systems); minor maintenance chemicals (paints, lubricants, gases); waste transformer oil; oily debris; universal wastes (waste batteries, fluorescent lights); minor trash and metal scrap.	Minor maintenance chemicals.	Same as current.
SCE San Fernando Substation	Transformer oil (electrical transformers; SF_6 (circuit breakers); battery acid (battery backup systems); minor maintenance chemicals (paints, lubricants, gases); waste transformer oil; oily debris; universal wastes (waste batteries, fluorescent lights); minor trash and metal scrap.	Diesel fuel and/or gasoline (for vehicles and construction equipment); minor vehicle maintenance and construction chemicals.	Same as current, except that the amount of SF_6 will increase slightly.

4.7.1.3 Applicable Laws, Regulations and Standards

Hazardous material handling and hazardous waste generation at each location are controlled by Federal, State, and local regulations.

Hazardous Materials Handling

The Superfund Amendments and Reauthorization Act (SARA), Title III, of 1986, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA), along with the Clean Air Act of 1990, established a nationwide emergency planning and response program that imposed planning, reporting, and notification requirements for businesses concerning hazardous materials. The requirements apply when specific quantity thresholds are reached.

California's version of EPCRA is implemented by regulations found in CCR Title 19. The primary difference between the Federal and California requirements are the lower California thresholds; in most cases, a business must submit an inventory of hazardous materials present at a location in excess of 55 gallons, 500 pounds, or 200 standard cubic feet for a gas, and must also prepare a Hazardous Materials Business Plan (HMBP), which specifies handling, emergency response and related procedures.

Hazardous materials inventories and hazardous materials business plans are submitted to the local Certified Uniform Program Agency (CUPA). For the Proposed Project areas listed above, the CUPA is governed by either, the Los Angeles County Fire Department, Health Hazmat Division or the City of Los Angeles Fire Department. The CUPAs also impose licensing requirements on hazardous materials (and hazardous waste) handlers.

Certain extremely hazardous materials require more extensive emergency planning procedures under the federal and state regulations. However, except for natural gas – which is exempt from the regulations when being transported or stored incident to transportation – the Proposed Project area facilities do not handle such materials.

Oil Storage and Handling

Storage and handling of petroleum and non-petroleum oils are regulated under SPCC requirements in CCR Title 40 Part 112 (40 CFR 112). These regulations are intended to reduce the threat of spills of oil to navigable waters of the United States. The regulations require development of an SPCC Plan for each applicable facility, which describe measures to prevent and respond to oil discharges.

Due to the oils contained within electrical equipment such as electrical transformers, in other oil-filled operational equipment, or in aboveground containers, each of the electrical substations associated with the Proposed Project, as well as the Storage Facility, are required to prepare and implement an SPCC Plan.

Hazardous Waste Handling

Classification, handling and disposal of hazardous wastes are addressed by the 'cradle-to-grave' regulations found in 40 CFR 260 through 279 and State regulations found in CCR Title 22. The California regulations define a considerably larger universe of wastes as hazardous compared to the federal. Both sets of regulations impose detailed requirements on hazardous waste generators, transporters and treatment, storage and disposal facilities. Less-stringent requirements apply to several categories of “universal wastes,” including waste batteries and waste fluorescent light tubes, which are generated by virtually every business and represent a comparatively low hazard. Waste oil is not regulated as a hazardous waste under the Federal regulation, but generally is regulated as such by California.

Hazardous waste generators are licensed through the CUPAs, via a license combining hazardous materials handling and hazardous waste generation. The licenses, which are renewed annually, require hazardous waste generators to adhere to Federal and State hazardous waste regulations and allow for the CUPA to periodically inspect the facility for compliance.

Gas compressor station condensates which will be generated by the proposed Central Compressor Station are not required to be managed as a hazardous waste; they are further processed to recover useful gas liquids, and a separated water stream is sent to a permitted underground injection well in the gas storage field.

Treated wood wastes removed from utility service are also not considered hazardous waste, however, are subject to specified handling and disposal requirements under Division 20 of the California Health and Safety Code.

Non-Hazardous Waste Handling

Handling of non-hazardous solid and liquid wastes is regulated by various Federal, State and local laws, regulations and ordinances. In general, solid non-hazardous waste (e.g., trash, garbage, inert wastes) storage and handling requirements are set forth in Los Angeles County Code Titles 11 and 12. These regulations are oriented primarily toward litter and vector control and require the use of covered containers, regular emptying of containers, and forbid abandoning wastes on public or private property.

Disposal requirements for generators of non-hazardous industrial wastes are specified by regulations implemented by the California Integrated Waste Management Board (CIWMB) and the State Water Resources Control Board (SWRCB). The SWRCB’s Land Disposal program regulates waste discharge to land for treatment, storage and disposal in waste management units, including both solid and liquid wastes, in accordance with CCR Title 27. Similar to the hazardous waste regulations, generators of non-hazardous industrial wastes are required to determine the waste’s characteristics, including potential impact on water quality, prior to waste disposal. No waste materials generated by the Proposed Project will be disposed of onto land at any of the Proposed Project areas, with the exception of clean soil.

The Proposed Project does not feature disposal of any liquid industrial wastes to the municipal sewer system. As previously indicated, separated water from processing the gas condensate waste stream from the compressor station is injected, along with other oil extraction-related wastewaters, into a former oil well. Known as a Class II underground injection well, operation of this well is permitted through the California Department of Conservation, Division of Oil, Gas and Geothermal (DOGGR) in accordance with CCR Title 14.

4.7.1.4 Airports and Air Strips

There are no public or public use airports within 2 miles of the Proposed Project. The closest public use airport is Van Nuys Airport, a civil aviation airport located ~ 7 miles south-southeast of the Proposed Project area.

The only private airstrips located in the vicinity of the Proposed Project are several private helipads. The ‘Spears’ and ‘Merle Norman Cosmetics’ helipads are located in San Fernando, each lying within approximately 2 miles of the proposed SCE 66 kV sub-transmission modification at approximately its I-5 crossing point, and also within 2 miles of the San Fernando Substation.

4.7.1.5 Wildland Fire

Significant portions of the Proposed Project area, including much of the alignment of the proposed SCE 66 kV sub-transmission modification and the Proposed Project areas located within the Storage Facility are located in areas of significant wildland fire hazard. The California Department of Forestry and Fire Protection has designated these areas as Very High Fire Hazard Severity Zones (SRA, 2007). These areas are characterized by hilly terrain, highly flammable native vegetation, and susceptibility to high winds, particularly during late summer and fall ‘Santa Ana’ conditions. The October 2008 Sesnon Fire burned portions of the Storage Facility.

Other Proposed Project areas within urbanized locations, such as the Newhall, Chatsworth and San Fernando Substations and nearby transmission line segments, are not subject to wildland fire hazards.

4.7.1.6 Schools

There are a total of three schools located within 0.25-mile of the alignment of the proposed SCE 66 kV sub-transmission modification:

- Rise and Shine Preschool, 25222 Wiley Canyon Road, Newhall
- Wiley Canyon Elementary School, 24240 La Glorita Circle, Newhall
- Santa Clarita Preschool & Infant Center, 25022 Hawkbryn Avenue, Newhall

The only other school located within 0.25-mile of one of the Proposed Project areas where construction will be performed is Bishop Alemany High School, 11111 N Alemany Drive, Mission Hills, which is located just northwest of the San Fernando Substation.

4.7.1.7 Emergency Response Plan

Los Angeles County has adopted an Operational Area Emergency Response Plan (ERP). Under the ERP, the County of Los Angeles serves as the Operational Area Coordinator for all cities within the County’s boundaries.

A Standardized Emergency Management System (SEMS) has been adopted by the city of Santa Clarita for managing response to multi-agency and multi-jurisdiction emergencies and to facilitate communications and coordination among responding agencies. The SEMS was developed to meet requirements of CCR Title 19, Chapter 1, Division 2.

4.7.2 Significance Criteria

According to CEQA significance criteria and the CPUC's PEA checklists, the Proposed Project could cause a potentially significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4-mile of an existing or proposed school?
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

4.7.3 Applicant Proposed Measures

The following APMs will be implemented as part of the Proposed Project design:

APM-HH-01: SCE will consult with the FAA as part of the Proposed Project design phase to ensure that elevated structures such as TSPs will not pose a hazard for air traffic.

APM-HH-02: Construction phase procedures and the engineering design and operational procedures for the proposed Central Compressor Station will incorporate measures for fire prevention and detection in order to lower the risk of initiating wildland fires.

APM-HH-03: SoCalGas will inspect and maintain the PPL for the purpose of reducing wildfire hazards.

APM-HH-04: Construction procedures will be implemented in order to minimize the potential for hazardous material spills and releases.

4.7.4 Environmental Impacts

The potential impact to hazards from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential hazards resource impacts, CEQA criteria were evaluated and are discussed separately for construction and operations.

4.7.4.2 Construction Impacts

Would the Proposed Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Potential hazards to the public or the environment related to hazardous materials during the construction phase would be related to: 1) inadvertent spills or releases of hazardous materials, or 2) incorrect handling of waste materials.

With the exception of vehicle and equipment fuels and transformer oils, the volumes of hazardous materials associated with the construction work are so small that no significant impacts would be expected even if a release were to occur. Impacts from such incidents would be avoided by thoroughly cleaning up minor spills as soon as they occur. Existing HMBPs and SPCC Plans at the Storage Facility and the existing substations require this, as do standard operating procedures for field construction crews.

During construction, small quantities of fuels may be transported and/or transferred within the alignment of the proposed 66 kV sub-transmission modification and the Storage Facility in order to facilitate fueling of non-road licensed construction equipment. However construction equipment will routinely fuel at the Marshalling Yards and therefore minimize the quantity of temporary fuel storage. Within the Storage Facility, all transfer and storage is controlled by the existing SPCC Plan. The Plan also provides for spill prevention training of applicable personnel and maintaining spill cleanup equipment on hand. Within the alignment of the proposed SCE 66 kV sub-transmission modification, most fueling is expected to be performed from a self-contained service vehicle, or from small (5 gallons and less) portable containers. Standard operating procedures require service vehicles to carry spill containment equipment.

As part of constructing the proposed SCE Natural Substation, several large (~ 1,000-gallon capacity) oil-filled electrical transformers will be placed. This process requires either transporting the filled transformers to the substation, or filling the transformers once they are set into place. If filled on-site, the oil transfer operation will be controlled by the procedures specified in the existing Storage Facility SPCC Plan. Transportation of either the transformer oil, or the filled transformers, to the proposed SCE Natural Substation location, will be controlled by a variety of California and Federal requirements for the transport vehicle, driver and load. Vehicles transporting oil to the site all carry spill control equipment.

Management of wastes generated by the construction process would be performed in accordance with federal, state and local regulations and requirements. The majority of construction-related wastes are generally inert materials (clean soil, vegetation, metal scrap, packaging materials, etc.) which will be primarily containerized and disposed of off-site. Wooden utility poles and wooden components treated with preservatives would be managed in accordance with California Health and Safety Code requirements for utility wood waste.

At locations where there is believed to be potential for subsurface soil contamination to occur – consisting of two locations within the Storage Facility – a pre-construction investigation will take place consisting of collecting soil samples for laboratory analysis. The analysis results will be used to determine whether the soil must be removed and legally disposed off-site, or the soil is considered clean and suitable for unrestricted re-use. If the soil is contaminated, it will be managed in isolation, separately from clean soils, and stored in compliance with the Storage Facility SWPPP and HMBP. Based on the waste characterization data, an off-site disposal facility will be selected and the material transported to it for disposal. If required, the appropriate regulatory agency will be notified of the soil contamination and sampling and removal will occur in accordance with any specified requirements.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Diesel-fired construction equipment emits hazardous emissions. However, due to the short duration of construction of the Proposed Project, construction equipment emissions do not have a significant impact.

No acutely hazardous materials are associated with the Proposed Project. The generally small quantities of hazardous materials and short duration of construction at the Proposed Project greatly limit the potential for any impact relative to the schools near the northern end of the alignment of the proposed SCE 66 kV sub-transmission modification and proposed San Fernando Substation modifications. Handling of materials handled in larger quantities – fuels and transformer oils – are well-controlled through existing construction standard operating procedures and regulation-required mechanisms including SPCC Plan and HMBP which specify spill prevention and control procedures.

Based on the above, the Proposed Project's impacts are less than significant.

Is the Proposed Project located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The Proposed Project in general, and specific areas where soil will be disturbed, are not located on a known hazardous material site based on the search of government agency databases.

A pre-construction investigation will take place at the proposed new office trailer location, consisting of collecting soil samples for laboratory analysis. Soils will also be examined during the geotechnical evaluations performed at other locations and samples collected if contamination is suspected. If soils are contaminated, they will be managed in isolation, separately from clean soils, and stored in compliance with the Storage Facility's existing SWPPP and HMBP. If required, the appropriate regulatory agency will be notified of the soil contamination and further sampling and removal will occur in accordance with any specified requirements. Contaminated soil, if present, will be disposed at an off-site facility in accordance with Federal and State hazardous and solid waste regulations.

Based on the above, the Proposed Project's impacts are less than significant.

For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Proposed Project result in a safety hazard for people residing or working in the project area?

The Proposed Project components are not located within an airport land use plan, or within two miles of a public airport or public use airport.

For a project within the vicinity of a private airstrip, would the Proposed Project result in a safety hazard for people residing or working in the project area?

Proposed modifications to the existing SCE 66 kV sub-transmission system may include installation of TSPs with wire heights reaching 200 feet above ground, e.g., on spans between I-5 and the proposed SCE Natural Substation. Based on this, as part of the design process SCE would be required to notify and consult with the FAA under regulations found in CFR 14, Part 77. The Proposed Project would be required to conform to all adopted safety standards and guidelines for airports and airfields.

Based on the above, the Proposed Project's impacts would be less than significant.

Would the Proposed Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Proposed modifications to the two existing SCE 66 kV sub-transmission lines and construction of the loop-in section at the San Fernando Substation include installation of new poles, cable pulling, and re-conductoring; associated construction activities will require pulling conductor across roads and/or possibly require a lane closure. In these situations, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route. Flaggers may briefly hold traffic back while conductor is pulled across a roadway, in the event of temporary road closures, emergency vehicles would need to use a designated detour route.. Therefore, emergency access would not be directly impacted by construction of the Proposed Project because detours would be provided, if required. As a result, construction of the Proposed Project would not physically interfere with or impair the implementation of adopted emergency response and evacuation plans.

Based on the above, the Proposed Project's impacts are less than significant.

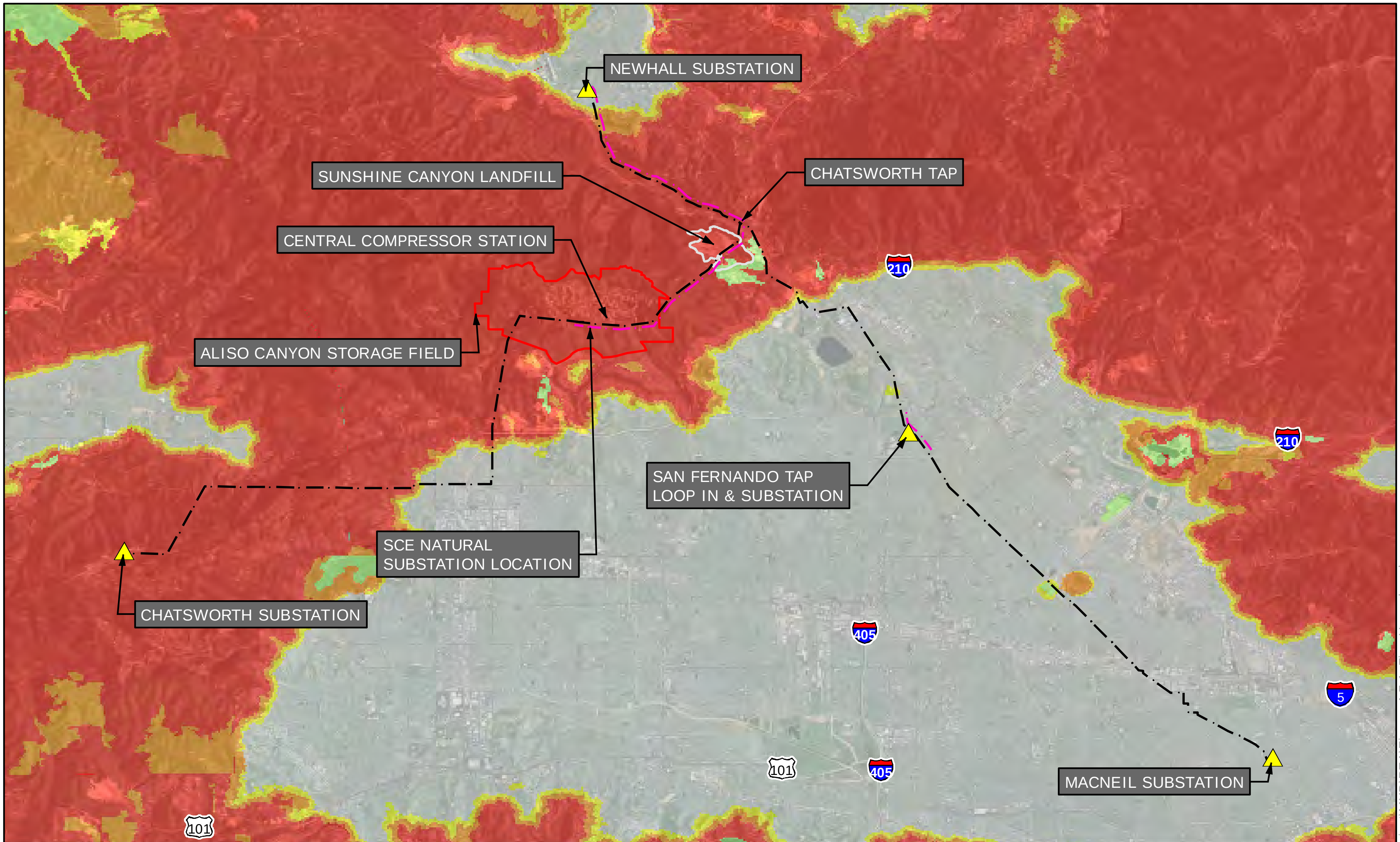
Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

As shown on Figure 4.7-1, much of the Proposed Project is being built in an area mapped as a moderate to very high fire hazard area. In these areas, and at substation locations, SCE has standard protocols that are implemented when the National Weather Service issues a Red Flag Warning. These protocols check include measures to address smoking and fire rules, storage and parking areas, use of gasoline-powered tools, use of spark arresters on construction equipment, road closures, use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements. Portable communication devices (i.e., radio or mobile telephones) would be available to construction personnel.

Within the Storage Facility, a variety of equipment and operational rules related to fire protection are in place. Fire hydrants, fire monitoring systems, and extinguishers are located throughout each facility. Each facility implements a brush clearance program for keeping active operational areas, including construction locations, and overhead electrical system components, free from excess plant growth. Finally, specified operations are curtailed or shut down during Red Flag Warnings. The Storage Facility has its own fire water system, with a portion of each water storage tank dedicated for fire water storage.

In addition to these protective measures, fire risks during construction would be low because construction areas for the Proposed Project would be grubbed of vegetation and graded prior to the staging of equipment, minimizing the potential for a construction vehicle to start a fire.

As a result, construction of the Proposed Project would have a less than significant impact to risk of loss, injury or death involving wildland fires.



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Aliso Canyon Storage Field
- Sunshine Canyon Landfill
- Existing Substation

Fire Hazard Class

- Urban Un Zoned
- Non-Wild Land/Non-Urban
- Moderate
- High
- Very High

1 inch = 3 miles

0 3 6 Miles

Aliso Canyon PEA

Figure 4.7-1
Fire Hazard Areas

Source: CA Department of Forestry and Fire Protection

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4.7.4.3 Operation Impacts

Would the Proposed Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

As summarized in Table 4.7-1, hazardous material use associated with the operating electric transmission lines and office trailer location would be minimal. There would be no net change in the current chemical use at any of the existing substation facilities; their potential hazard is low, similar to that for the proposed SCE Natural Substation described below.

Hazardous materials that would be transported to and used at the proposed SCE Natural Substation and the proposed Central Compressor Station consist of lubricants (e.g., gear oil), minor maintenance chemicals, and on occasion transformer oil for substation electrical equipment. Procedures for the transport of hazardous materials are established in accordance with United States Department of Transportation (DOT) and California Department of Transportation (Caltrans) regulations. A qualified transporter would be selected to comply with DOT and Caltrans regulations.

Hazardous materials storage at the proposed SCE Natural Substation and the proposed Central Compressor Station would be in accordance with the HMBP and SPCC Plan developed for each location. These plans provide for both physical and operational spill controls that protect against releases. In addition, both locations are fenced and are distant from residential and public use areas.

Some substation electrical switches contain SF_6 gas, which is recognized as an ozone-depleting substance. SCE utilizes gas handling equipment that minimizes SF_6 leakage, and new switches incorporate sealing designs that virtually eliminate possible sources of leakage. It is expected that the proposed SCE Natural Substation would have a minimal amount of routine SF_6 leakage.

During routine operations small amounts of hazardous waste, such as waste oil and oily rags and other debris, would be generated by substation and compressor station operations. These wastes would be managed in accordance with the County-issued hazardous materials/hazardous waste license and state and local regulations, including secure storage and off-site disposal at an approved facility.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The only potential significant release of material associated with the Proposed Project would be if compressor station equipment or substation electrical transformers or switches were damaged from a seismic event, fire or other unforeseen incident. Such an event could have the potential to release natural gas or transformer oil.

The proposed Central Compressor Station design will incorporate numerous features designed to detect and prevent natural gas release, similar to the current compressor station. As indicated above, natural gas which moves through the existing compressor station and the proposed Central Compressor Station is subject to numerous safety requirements imposed by Federal and State pipeline safety requirements; the risk or protective measures would not be changed as a result of installation of the proposed Central Compressor Station.

At the substations, SF_6 releases associated with a catastrophic release would not likely be large, as there are only an estimated total of 210 pounds of the material in all the breakers at the proposed SCE Natural Substation, and less than that at the San Fernando Substation. SF_6 is non-toxic and significantly heavier than air, so that its only hazard is relative to asphyxiation if it were to pool in a confined space. As the circuit breakers are all located outdoors within the substation, this is unlikely.

To minimize potential impacts from transformer oil release, substation designs provide containment and/or diversionary structures and equipment to prevent an oil discharge from leaving the substation property. This and other measures are part of the SPCC Plan that is prepared for each substation prior to oil-containing equipment being brought to the substation site.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No acutely hazardous materials are associated with the Proposed Project.

The only operational location in close proximity to a school is the San Fernando substation. At this location there would be no ongoing hazardous emissions associated with the Proposed Project, and most hazardous material and wastes would be handled in very small quantities within the secure facility. Transformer oil is present, but under normal operating conditions is securely contained with the transformer itself. Transformer oil is not a hazardous material under Federal regulations. California does consider transformer oil a hazardous material. However, given the infrequent handling of the material outside of the electrical transformers, its low volatility and relatively low toxicity, and the location of the substation at a slightly lower elevation than the school, even a catastrophic release would be unlikely to affect the school.

Based on the above, the Proposed Project's impacts are less than significant.

Is the Proposed Project located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The Proposed Project in general, and specific areas where soil will be disturbed, are not located on a known hazardous material site based on the search of government agency databases.

Based on the above, the Proposed Project's impacts are less than significant.

For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Proposed Project result in a safety hazard for people residing or working in the project area?

The Proposed Project components are not located within an airport land use plan, or within 2 miles of a public airport or public use airport.

Based on the above, the Proposed Project's impacts are less than significant.

For a project within the vicinity of a private airstrip, would the Proposed Project result in a safety hazard for people residing or working in the project area?

As indicated previously, the proposed SCE 66 kV sub-transmission modification may include installation of TSPs with wire heights reaching 200 feet above ground (AGL), which could exceed FAA height criteria such that notification and consultation with the FAA would be required. The Proposed Project would be required to conform to all adopted safety standards and guidelines for obstruction marking and lighting.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Operation of the Proposed Project would not affect emergency plans or evacuation routes. None of the locations have the potential to impact traffic, and transmission lines will span all potential emergency response and evacuation routes.

Based on the above, the Proposed Project's impacts are less than significant.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Overall, operation of the Proposed Project does not materially change the existing exposure of persons or structures to wildland fire risk. Both the existing 66 kV sub-transmission alignment and the Proposed Project may pose a fire hazard if vegetation or other obstructions were to come in contact with energized electrical equipment. The Proposed Project would be constructed and maintained in a manner consistent with CPUC GO 95 and CPUC GO 165. Consistent with these and other applicable Federal and State laws, SCE would maintain an area of cleared brush around energized electrical equipment associated with the 66 kV line, minimizing the potential for fire, where applicable. SoCalGas owned PPL would not be subject to the same CPUC State requirements for brush clearing, however would be inspected and maintained to reduce wildfire hazard in the area.

Within the Storage Facility, a variety of equipment and operational rules related to fire protection are in place and will remain in place after the Proposed Project is constructed. Neither the proposed Central Compressor Station nor the proposed Natural Substation materially change the existing minimal exposure of persons or structures to wildland fire.

Based on the above, the Proposed Project's impacts are less than significant.

4.7.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** due to construction and operation; therefore no mitigation is required or proposed.

4.7.6 References

Airport IQ™ 5110 System Airport Master Records and Reports, http://www.gcr1.com/5010web (accessed April and June, 2009)

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California Department of Forestry and Fire Protection, Fire and Resource Protection Program, Fire Hazard Severity Zones in Significant Resource Area (SRA), November 2007,

Environmental Data Resources, Inc. EDR OnDemand™ (accessed April, 2009)

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Los Angeles County Department of Regional Planning, Santa Clarita Valley Area Plan, Preliminary Draft 2008.

J. Steve Rahon, Southern California Gas Company to Public Utilities Commission of the State of California, July 17, 2002, Re: Additional Hazardous Substance Site

United States Environmental Protection Agency, ECHO system, http://www.epa-echo.gov/echo/ (accessed August 2009)

United States Geologic Survey (USGS), San Fernando Topographic map, 7.5-Minute Quadrangle, 1:24,000, 1969.

4.8 Hydrology and Water Quality

This section describes potential hydrology and water quality impacts associated with construction and operation of the Proposed Project.

Project components that do not involve ground disturbance or groundwater impacts were not evaluated in this section. These components include installation of upgraded relay systems and equipment at the SCE Newhall, Chatsworth, and San Fernando Substations.

4.8.1 Existing Hydrology and Water Quality Setting

The Proposed Project lies within both the Santa Clara River Valley watershed and the Los Angeles River (San Fernando Valley) watershed, as presented on Figure 4.8-1 Hydrology and Floodplains. These watersheds are divided by the east/west trending Santa Susana Mountains. The Proposed Project components including the proposed Central Compressor Station, proposed office trailer and guard house relocation, proposed SCE Natural Substation and almost half of the proposed SCE 66 kV sub-transmission lines are located within and south of the Santa Susana Mountains in the Los Angeles River watershed. The remainder of the proposed SCE 66 kV sub-transmission line modification is located in the Santa Clara River Valley watershed, north of the Santa Susana Mountains.

The Santa Clara River Valley watershed encompasses the Santa Clara River, the largest river system in southern California that remains in a relatively natural state. The river originates in the northern slopes of the San Gabriel Mountains in north Los Angeles County, traverses in a westerly direction into Ventura County, and discharges into the Pacific Ocean near the city of Ventura. The river runs approximately 100 miles from its headwaters near Acton, California, to its outlet, and drains an area of approximately 1,600 square miles. The entire Proposed Project is located south of the Santa Clara River; the closest component is the proposed SCE 66 kV sub-transmission line modification originating at the SCE Newhall Substation, located approximately 1.4 miles south of the Santa Clara River.

For ease of reference, the portion of the Santa Clara River within Los Angeles County is generally referred to as Upper Santa Clara River. The portion within Ventura County is generally referred to as Lower Santa Clara River. The proposed SCE 66 kV sub-transmission modification, which originates at the SCE Newhall Substation and travels through Gavin Canyon, is north of the Santa Susana Mountains within Los Angeles County and therefore drains toward the Upper Santa Clara River.

The Upper Santa Clara River watershed consists of approximately 680 square miles of mostly natural land with some mixed use developed areas. Some of the major tributaries in the Upper Santa Clara River watershed include Castaic Creek, San Francisquito Canyon, Bouquet Canyon, Sand Canyon, Mint Canyon, and the South Fork of the Santa Clara River (Los Angeles County Department of Public Works [LACDPW], 2009a). The proposed SCE 66 kV sub-transmission modification, which originates at the SCE Newhall Substation, is located within the drainage of the South Fork of the Santa Clara River tributary and is primarily located within open space, next to a transportation corridor but also within commercial and residential areas. The upstream portion of the proposed SCE 66 kV sub-transmission modification is within open space next to the transportation corridor and the downstream portion is within commercial and residential areas. Existing land uses are further described in Section 4.9 Land Use and Planning.

In general, the Santa Clara River Valley watershed is semi-arid, and receives an average range of 14 inches to 16 inches of rainfall per year. Nearly all of the rainfall occurs between the months of November and March. The surface waters are primarily arroyos and normally dry creeks that have historically carried storm flows and post-storm flows from the upper watershed down to the alluvial valleys (California Department of Water Resources, [DWR], 2004). As discussed later, storm water flows of sufficient intensity will reach the Santa Clara River from the upper portion of the watershed where the Proposed Project is located.

The Los Angeles River watershed covers a land area of over 834 square miles including the eastern portions of the Santa Monica Mountains, the Simi Hills, and the Santa Susana Mountains to the San Gabriel Mountains in the west. The watershed encompasses and is shaped by the path of the Los Angeles River that flows from its headwaters in the western portion of the San Fernando Valley eastward to the Glendale Narrows, where it turns southward and flows across the Los Angeles coastal plain into San Pedro Bay. The Los Angeles River includes diverse patterns of land use; the upper portion is mostly forest, chaparral, and open space, while the lower portion is highly intensive commercial, industrial and residential land use. The major tributaries of the Los Angeles River include Burbank Western Channel, Pacoima Wash/Tujunga Wash, Aliso Canyon Wash, Bull Creek, and Verdugo Wash in the San Fernando Valley; and the Arroyo Seco, Compton Creek, and Rio Hondo south of the Glendale Narrows (LACDPW, 2009b). As discussed later, storm water flows of sufficient intensity will reach the Los Angeles River from the upper portion of the watershed where the Proposed Project is located.

The proposed SCE 66 kV sub-transmission modification located north of the SCE Chatsworth Tap to the Storage Field (see Figure 3.1-2), where project components including the proposed SCE Natural Substation, the proposed Central Compressor Station, the proposed PPL, the proposed office trailer relocation, and proposed guard house relocation are located in and south of the Santa Susanna Mountains. These components are within the drainage areas of the Aliso Canyon Wash and Bull Creek tributaries of the Los Angeles River. Project components located in upstream portions of the tributaries are located primarily in undeveloped open space or developed as the Aliso Canyon Natural Gas Storage Field; the lower portions of these tributaries are located in fully developed residential areas. Existing land use is further described in Section 4.9 Land Use and Planning.

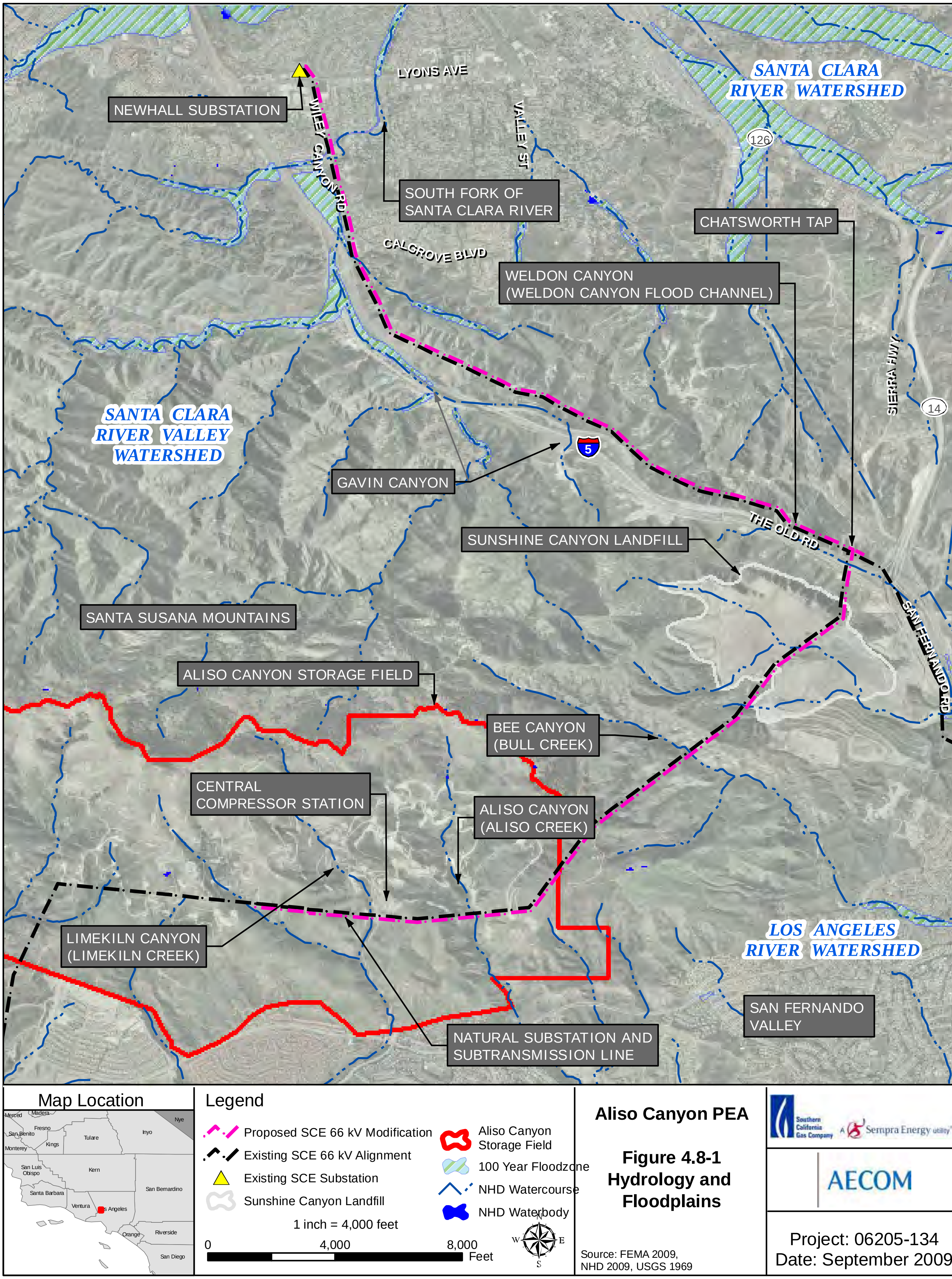
The Los Angeles River Watershed has 22 lakes within its boundaries including Devil Gates Dam, Hansen Basin, Lopez Dam, Pacoima Dam, and the Sepulveda Basin. In addition, there are a number of spreading grounds in the watershed including sites at Dominguez Gap, the Headworks, Hansen Dam, Lopez Dam, and Pacoima Dam.(LACDPW, 2009b). A portion of the proposed SCE 66 kV sub-transmission modification located to the west of the SCE Chatsworth Tap is located upgradient of the Los Angeles Reservoir, however the upgradient storm water flows are diverted around the Los Angeles Reservoir in Bull Creek.

The Los Angeles watershed receives an average range of 15 to 23 inches of rainfall per year. Similar to the Santa Clara River Valley watershed, nearly all of the rainfall occurs between the months of November and March (DWR, 2004)

In mountain areas, the steep canyon slopes and channel gradients promote a rapid concentration of storm runoff. Depression storage and detention storage effects are minor in the rugged terrain. Soil moisture during a storm has a pronounced effect on runoff from the porous soil supporting a good growth of deep-rooted vegetation such as chaparral. Soil moisture deficiency is greatest at the beginning of a rainy season, having been depleted by the evapotranspiration process during the dry summer months. Precipitation during periods of soil moisture deficiency is nearly entirely absorbed by soil, and except for periods of extremely intense rainfall, significant runoff does not occur until soil is wetted to capacity. Due to high infiltration rates and porosity of mountain soil, runoff occurs primarily as subsurface flow or interflow in addition to direct runoff. Consequently, most streams in the County are ephemeral.

Storm water runoff occurs after the soil has become saturated and the steep canyon slopes and channel gradients in the upper portion of these watersheds promote a rapid concentration of storm water runoff into the normally dry creeks or washes. The LACDPW has constructed and also maintains concrete flood control channels for the lower portions of these creeks or washes that are located in developed (primarily for residential) areas of the watersheds within Los Angeles County. The Proposed Project is located in areas upstream of LACDPW flood control channels. The closest concrete lined flood control channel to the Proposed Project is the South Fork of the Santa Clara River north of Lyons Road that is adjacent to the proposed SCE 66 kV sub-transmission modification originating at the SCE Newhall Substation. The remainder of the Proposed Project including the proposed SCE 66 kV sub-transmission line modification starting just north of the SCE Chatsworth Tap to the project components within the Storage Field are located upstream and at least 1.25 miles north of the following concrete lined channels: Bull Creek east of Balboa Boulevard, Aliso Creek/Wilbur Creek south of the Ronald Reagan Freeway (118) and Limekiln Creek/Wash south of Devonshire (LACDPW, 2009). The proposed SCE 66 kV sub-transmission modification within the I-5 transportation corridor right of way at the SCE Chatsworth Tap is directly upstream of the Weldon Canyon Flood Control Channel south of San Fernando Road.

The existing SCE 66 kV sub-transmission lines originating at SCE's Newhall Substation, which travels up into Gavin Canyon is located within the south eastern portion of the Santa Clara River Valley watershed, and within the Santa Clara River South Fork drainage area. According to the Newhall Quadrangle topographic map, the surface water drainage for this component of the project drains in an unnamed creek to the north via Gavin Canyon into the South Fork of the Santa Clara River (USGS, 1988), as shown on Figure 4.8-1. The SCE Newhall Substation is located in the City of Santa Clarita, which has developed a storm water system to collect storm water from the developed commercial and residential areas and is connected to the LACDPW flood control system. The SCE 66 kV sub-transmission system south of the SCE Newhall Substation is partially (~ 2,000 feet) located within the South Fork of the Santa Clara River 100 year flood zone (according to FEMA maps), an area that is mixed (commercial/industrial) land use. However the majority (~ 3.5 miles) of the SCE 66 kV sub-transmission system south of the SCE Newhall Substation is located in open space mountain areas adjacent to the I-5 transportation corridor as shown on Figure 4.8-1.



Aliso Canyon PEA

Figure 4.8-1 Hydrology and Floodplains

Source: FEMA 2009, NHD 2009, USGS 1969

Southern California Gas Company — A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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The proposed SCE 66 kV sub-transmission modification, located between Weldon Canyon and the Storage Field, is located in mountain and canyon open space areas that have existing natural drainage courses as described below that ultimately connect to LACDPW concrete lined channels with the following exceptions. The portion of the SCE 66 kV sub-transmission line in Weldon Canyon is located in a transportation corridor with bordering open space and commercial development; the storm water drainage connects directly to a LACDPW flood control channel and the portion of the SCE 66 kV sub-transmission line that is located immediately south and west of the I-5 highway in Weldon Canyon drains into the Sunshine Canyon Landfill property. This property has been developed for a municipal landfill that has an engineered storm drain system including a sedimentation basin.

The portion of the SCE 66 kV sub-transmission line between Weldon Canyon and the proposed SCE Natural Substation is located in the mountain areas of the upper portions of the Los Angeles River Watershed. The proposed SCE Natural Substation and the proposed Central Compressor Station are located in the Limekiln Canyon watershed that has an area of 1,061 acres (LACDPW, 2008). Limekiln Canyon water shed is in the north western portion of the Los Angeles River watershed and bordering the southern edge of the Santa Clara River Valley watershed. Both of these components are located in an area that was developed for an oil field and redeveloped for a natural gas storage facility. The alignment of the proposed SCE 66 kV sub-transmission modification west of Weldon Canyon is located in several watersheds as the alignment crosses Sunshine Canyon, Bee Canyon, Aliso Canyon, and Limekiln Canyon (LACDPW, 2009). These canyons are indicated on Figure 4.8-1, Hydrology and Floodplains. Sunshine Canyon, Bee Canyon, Aliso Canyon, and Limekiln Canyon are drained by Weldon Canyon Flood Control Channel, Bull Creek, Aliso Creek/Wilbur Creek and Limekiln Creek/Wash, all of which are tributaries of the Los Angeles River. The land use in these canyons where these creeks originate is open space or has been developed for natural gas storage and once these creeks exit the canyons the land use around the down stream portions of these creeks is developed for residential or commercial uses. The SCE 66 kV sub-transmission system crosses over these creeks; the proposed Central Compressor Station, proposed office trailer and guard house relocation, and proposed SCE Natural Substation are located within 0.5 mile of Limekiln Creek.

As part of the County flood control program, LACDPW has constructed and maintains debris basins. Debris basins are generally located in residential or commercial areas immediately down stream of open space, mountainous areas. The function of debris basins is to retain sediment and vegetative debris that are swept down from the open space areas as well as control storm water flows. They are usually designed for allowing multiple years of deposition before cleaning, however annual debris and sediment production is increased significantly after a fire occurs in a watershed. The Proposed Project, including the proposed Central Compressor Station, proposed SCE Natural Substation and the proposed SCE 66 kV sub-transmission modifications are located in or cross Limekiln, Aliso and Bee Canyons. These canyons are upstream of LACDPW flood control debris basins. The closest debris basins to the Proposed Project and existing SCE 66 kV sub-transmission lines are the Limekiln Debris Basin (~1.6 mile south), the Aliso Debris Basin (~ 1.5 miles south) and Bull Creeks in the Los Angeles River watershed.

A segment of the existing SCE 66 kV sub-transmission line south and west of the SCE Chatsworth Tap crosses over the Sunshine Canyon Landfill. The Sunshine Canyon Landfill constructed and maintains sedimentation basins for storm water control of the entire developed landfill footprint as well as storm water run on from the less developed canyons up stream of the landfill (Stirrat, 2008).

In general, the alignment of the proposed SCE 66 kV sub-transmission modification is not located within a Federal Emergency Management Agency (FEMA) 100-year designated flood zone with one exception. The FEMA 100-year floodplains in the vicinity of the Proposed Project are shown on Figure 4.8-1, Hydrology and Floodplains. Only a small portion (~ 2,000 feet) of SCE's existing 66 kV sub-transmission lines south of SCE's Newhall Substation are located within a FEMA designated 100-year Flood Hazard Zone. This section of the existing sub-transmission line, known as the SCE MacNeil-Newhall-San Fernando 66 kV existing source line, is supported by steel lattice frame towers. For the Proposed Project the towers will be replaced with TSPs and the line will be re-conductored. The existing towers have four legs with connecting cross beams located at the base of each tower. TSPs are a single steel pole.

The Proposed Project, including portions of SCE's existing 66 kV sub-transmission system associated with the Proposed Project, are not located in or downstream of any surface water bodies or on-site detention basins.. The closest water bodies to the Proposed Project and existing 66 kV sub-transmission lines in the Santa Clara River Valley East Sub basin are Castaic Lake, Piru Lake, Pyramid Lake, and Bouquet Reservoir, all of which are more than 5 miles from the Proposed Project. The closest water bodies to the Proposed Project, and existing 66 kV sub-transmission line in the Upper Los Angeles River basin include the Van Norman Lakes, Los Angeles Reservoir, Pacoima Reservoir and Chatsworth Reservoir. Of these, the Los Angeles Reservoir is about 1.5 miles from the proposed 66 kV sub-transmission modification.

The Los Angeles River watershed has impaired water quality in the middle and lower portions of the basin due to runoff from dense clusters of commercial, industrial, residential, and other urban activities and not from the upper portions of the basin that are open space and less developed. Section 303(d) of the CWA requires that states make a list of waters that are not attaining standards after the technology-based limits are put into place. As of 2006, the Los Angeles RWQCB designated the following water bodies as impaired with associated pollutants: Aliso Canyon Wash for copper, fecal coliform and selenium; Bull Creek for indicator bacteria, and the Los Angeles River Reach 5 for ammonia, coliform bacteria, copper, lead, nutrients (algae) and trash. These water bodies and associated pollutants were recently proposed (as of July 2009) by the Los Angeles RWQCB to the EPA to remain on the Section 303(d) list. None of the other creeks previously described as downstream of the Proposed Project are on the proposed list (SWRCB, 2009 and LACDPW, 2009). The alignment of the proposed SCE 66 kV sub-transmission modification will cross Aliso Canyon Creek and Bull Creek in the upstream portions of these creeks that are currently open space. These creeks intersect the Los Angeles River Reach 5, after flowing through areas with commercial, industrial and residential uses and over 5 miles south of the Proposed Project.

Groundwater

Groundwater in the County of Los Angeles is stored in basins underlying five major geographic areas. These groundwater basins are separated by geologic features which impede groundwater movement, or by political boundaries. These basins are the Upper San Fernando, San Gabriel Valley, the Coastal Plain, Santa Clarita Valley and Antelope Valley. The San Fernando Valley is also known as the Upper Los Angeles River Area. Most of the runoff from the surrounding mountains flows to the Valley. The Valley is composed of four basins: the San Fernando Mina, Sylmar, Verdugo and Eagle Rock (DWR, 2004).

The Proposed Project and the existing 66 kV sub-transmission lines lay within the Santa Clara River Valley East Sub basin and north of (outside) the San Fernando Valley (Los Angeles River) groundwater basins. Similar to the watersheds, these two groundwater basins are divided by the Santa Susana Mountains.

Groundwater is encountered in alluvium, terrace deposits and the Saugus Formation of the Santa Clara River Valley basin. Terrace deposits generally lie above the water table and likely have limited ability to supply ground water to wells (DWR, 2004).

During installation of the TSPs that are part of the proposed SCE 66 kV sub-transmission modifications, there is a possibility that shallow groundwater would be encountered during drilling of the boreholes from foundation locations placed in alluvial deposits. If water is encountered during drilling for TSP foundations, SCE would evaluate the stability of the strata. If the strata are stable, SCE would continue drilling, set the rebar cage, and fill the hole with concrete.

If SCE determines the strata are unstable, SCE will use drilling mud, a mixture of clay, usually bentonite, and water to fill the hole to above the water level. Special chemicals are added to the mud to compensate for the varying composition of the water and the formation being drilled and to increase the weight of the column. The drilling mud, by hydrostatic pressure, also helps prevent the collapse of unstable strata into the hole and the intrusion of water from water-bearing strata that may be encountered. After the hole is drilled, SCE will set the rebar cage and fill the hole with concrete. If caving continues to be a problem with the addition of the drilling mud, SCE would fill the hole with 2-sack concrete, allow it to set, and continue drilling. If this does not solve the problem, SCE would drive a steel casing into the hole to prevent additional caving, set the rebar cage, and fill the hole with concrete.

Any displaced water would be allowed to run off, provided no contaminants, if allowed by the LGA. SCE will vacuum the drillers mud into a vacuum truck from within the excavated hole, and properly dispose of the drillers mud. Any excavated 2-sack concrete slurry will be hauled away and properly disposed of. It is expected that the construction techniques for the installation of the TSPs could require either minor dewatering for rebar and concrete placement or placement of these materials in the wet. If minor dewatering should occur, it would be for a short period of time and would not affect groundwater levels in the region. Any water removed during construction would be discharged in a manner consistent with applicable permits or collected and transferred to appropriate disposal facilities off site.

The construction of the proposed Central Compressor station will include proper drainage of surface and subsurface water runoff that is critical to the stability of the slopes and entire site. Subsurface drains will be installed at the bottom of the pre-existing canyon areas with outlets at the downstream end of the site. Back drains could be required on the north side of the site to be used in conjunction with the subsurface drains. Under drains could be required around the turbine foundations to intercept ground water. It is anticipated that the under drains and sub-drains will discharge to the existing Limekiln Canyon Creek (Washington Group, 2007) that is adjacent to the southwest of the site). If minor dewatering is required for construction, it would be for a short period of time and would not affect groundwater levels in the region. Any water removed during construction would be discharged in a manner consistent with applicable permits or collected and transferred to appropriate disposal facilities off site.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

The following regulations from the Federal government regarding water quality are applicable to the Proposed Project:

Federal Clean Water Act - The Federal CWA, as amended by the Water Quality Act of 1987, regulates water quality in the United States. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. These waters include all navigable waters and tributaries thereto, and adjacent wetlands. Wetlands and permanent and intermittent drainages, creeks, and streams are generally subject to the jurisdiction of the USACE under Section 404 of the Federal CWA. By USACE definition, all aquatic or riverine habitats between the "ordinary high water mark" of rivers, creeks, and streams are potentially considered "waters of the United States" and may fall under USACE jurisdiction. Any deposit of fill into waters of the US, including wetlands, requires the acquisition of a permit from the USACE pursuant to Section 404 of the Federal CWA. Refer to Section 4.4 Biological Resources for the evaluation of the Proposed Project and the existing 66 kV sub-transmission system regarding this regulation.

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. The EPA has authorized the Regional Water Quality Control Board (RWQCB) to implement this program. Further discussion of the RWQCB implementation of this program is presented below.

Section 402 of the Clean Water Act. The State Water Resource Control Board (SWRCB) administers a statewide NPDES general construction storm water permit that covers a variety of construction activities that could result in wastewater discharges. Under this General Permit the State issues a project-level construction permit for projects that disturb more than an acre of land. The SWRCB Construction General Storm Water Permit process involves notification of the construction activity by providing a Notice of Intent (NOI) to the SWRCB; development of a SWPPP; and implementation of specific monitoring activities. The SWPPP outlines construction methods to avoid and minimize movement of sediment and pollutants into storm water. The Clean Water Act (33 U.S.C. Section 1342 (l)(2)) exempts Natural Gas Transmission projects to waters of the United States from the necessity for obtaining coverage under this state administered NPDES General Construction Storm Water Permit but requires storm water BMPs and prohibits the exceedance of Water Quality Standards. Construction storm water BMPs from the company's Water Quality Construction BMP Manual will be implemented during construction related activities conducted by SoCalGas to proactively protect storm water. The portion of the project involving electric transmission will notify for coverage under the NPDES General Construction Storm Water Permit and a SWPPP with appropriate BMPs will be developed. Any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. The EPA has authorized the Regional Water Quality Control Board

(RWQCB) to implement this program. Further discussion of the RWQCB implementation of this program is presented below.

State/County Plans, Policies, Regulations, and Laws

The following regulations and policies from the State of California regarding water quality are applicable to the Proposed Project.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act (Porter-Cologne) provides a comprehensive water quality management system for the protection of California waters. Porter-Cologne designates the SWRCB as the ultimate authority over state water rights and water quality policy, and also establishes nine RWQCBs that oversee water quality at the local and regional levels. The SWRCB and RWQCBs have the responsibility for issuing permits for certain point-source discharges, and for regulating construction and storm water runoff.

The SWRCB and RWQCBs are responsible for developing and implementing regional basin plans to regulate all pollutants or nuisance discharges that may affect either surface water or groundwater. Basin plans are prepared by the RWQCBs to establish water quality standards for both surface and groundwater bodies within their respective jurisdictions. Basin plans designate beneficial uses for surface and groundwater, set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses, and describe implementation programs to protect all waters in the region.

The RWQCBs regulate discharges to waters within their respective jurisdictions through administration of Federal NPDES permits, waste discharge requirements, and water quality certifications. RWQCBs administer Section 401 water quality certifications to ensure that projects with federal 404 permits do not violate state water quality standards. The LARWQCB holds jurisdiction over the Proposed Project area.

The SWRCB has jurisdiction over depositing fill or dredging in "State Only Waters" and issues Waste Discharge Requirements (WDRs) for these projects. This may be applicable to the Proposed Project. The Proposed Project will consult with the Army Corps of Engineers and the SWRCB for any necessary permits or requirement to comply with this issue.

State General Storm Water Permits. In response to CWA requirements, the State of California has adopted general storm water permits covering nonpoint source discharges for certain types of discharges, including from activities at certain industrial facilities and from construction sites involving more than 1-acre of disturbance.

The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, Adopted as of September 2009) requires preparation of a SWPPP and implementation of BMPs to reduce the potential for non-storm water pollutants (chemicals and sediment) to be discharged from a construction site to waters of the State. The Proposed Project will be required to prepare a SWPPP because the Proposed Project will involve greater than 1-acre of ground disturbance and/or is part of a larger common plan of development that in total disturbs 1-acre or more. The Clean Water Act (33 U.S.C. Section 1342 (l)(2)) exempts Natural Gas Transmission projects to waters of the United States from the necessity for obtaining coverage under this state administered NPDES General Construction Storm Water Permit but requires storm water BMPs and prohibits the exceedance of Water Quality Standards. Construction storm water BMPs from the company's Water Quality Construction BMP Manual will be implemented during construction related activities conducted by SoCalGas to proactively protect storm water. The portion of the project involving electric transmission will notify for coverage under the NPDES General Construction Storm Water Permit and a SWPPP with appropriate BMPs will be developed.

The Storage Facility is currently covered under the General Industrial Permit. Changes to the facility as a result of the Proposed Project, e.g., addition of the proposed Central Compressor Station, are required to be incorporated into the existing facility SWPPP. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology (BAT) economically achievable and best conventional pollutant control technology (BCT). The General Industrial Permit also requires development of a SWPPP as well as a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution are described (LARWQCB, 2009). If the General Industrial Permit is revised, the Facility will submit documentation as required and comply with the new permit.

Regional and Local Plans, Policies, Regulations, and Ordinances

The following regulations and policies from Los Angeles County regarding hydrology or water quality are applicable to the Proposed Project.

County of Los Angeles. If the project involves cutting or filling more than 50 cubic yards of soil, LACDPW requires a grading permit for the project per Title 26, Chapter 33 of the Los Angeles County Code. If drainage or other protective structures are affected by the grading program, the County requires that the grading plan state that these structures will be maintained in good condition and an inspection program shall be implemented to prevent damage from burrowing rodents. If the Los Angeles County Flood Control District ROW is affected, all work shall conform to the applicable Flood Control permit.

County of Los Angeles. If grading authorized by the grading permit is to extend into or through the rainy season (November 1 to April 15 of the following year) separate updated plans for erosion control must be submitted to the LACDPW prior to October 1 per Section 3319.3 of the County of Los Angeles Building Code. SWPPP requirements must be integrated into the Erosion Control Plans per Title 62, Section 7010 of the Los Angeles County Code.

County of Los Angeles. The County of Los Angeles issued a Conditional Use Permit, Case No. 473-(5) for the Natural Gas Storage facility in 1974. Condition number 6 of this permit states that “provisions be made for all natural drainage to the satisfaction of the County Engineer. Drainage plans, including two drainage plans signed by a State of California certified professional engineer, shall be submitted to the County Engineer, Design Division for approval prior to grading or construction (LACDRP, 1974). The CUP limits of conformance are defined by Exhibit A, the facility "plot plan." The basis for a CUP revision is substantial conformance with the existing conditions of land use and Exhibit A. Please note that the LACDPW review process for the grading permit will include hydrologic evaluation and drainage designs, if required by LACDPW (LACDPW Grading Review Sheet, 2009). It is anticipated that the LACDPW review of the Proposed Project grading permit application will satisfy the Condition number 6.

The Proposed Project will comply with the existing regulations for storm water control as required by the County of Los Angeles Ordinance 22.52.2210. The Proposed Project will consult with the County to determine if the Proposed Project is required to incorporate appropriate storm water mitigation measures into the design of the project. The Development Planning for Stormwater Management – A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), dated September 2002, prepared by the LACDPW will be used as appropriate for the design of Best Management Practices to meet these standards.

4.8.2 Significance Criteria

The significance criteria for assessing the impacts to hydrology and water quality come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute to runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year floodplain, as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

4.8.3 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with hydrology or water quality resources.

4.8.4 Environmental Impacts

The Proposed Project includes the following construction activities: proposed Central Compressor Station, proposed SCE Natural Substation, and proposed SoCalGas PPL, proposed office trailer and guard house relocation, and proposed SCE 66 kV sub-transmission modifications. The Proposed Project includes minor modifications to three SCE substations within the existing SCE 66 kV sub-transmission alignment. Figure 4-8-1 shows the major project components.

The Proposed Project is located mainly on unincorporated Los Angeles County lands, with a small portion within the City of Santa Clarita in the southwest end of the Santa Clarita Valley. The southeastern section of the Proposed Project area lies within the city of Los Angeles. The existing SCE 66 kV sub-transmission alignment is located in a transitional zone between more developed areas of the city of Santa Clarita and undeveloped areas within Los Angeles County.

The location of the proposed SCE Natural Substation will be on the SoCalGas fee-owned property at the Aliso Canyon Storage facility, as shown on Figure 4-8-1. This location is west of the site proposed for the proposed Central Compressor Station.

The proposed Central Compressor Station will be constructed in an area that has been previously disturbed as part of the development of the natural gas storage facility. As part of the proposed Central Compressor Station construction, the existing office trailers will be relocated. The site for the relocated offices is also a previously disturbed site. There will not be any additional access roads constructed during construction of the proposed Central Compressor Station. The site is an existing developed area, with existing well-maintained roads.

The alignment of the proposed SCE 66 kV sub-transmission modification originates in a developed portion of Newhall, a community within the city of Santa Clarita. The modifications to the existing 66 kV sub-transmission system include pole replacement, re-conductoring, telecommunication stringing, and the addition of a new circuit segment from the SCE Chatsworth Tap to the proposed SCE Natural Substation. This component of the project will be conducted in a previously disturbed utility easements and rights-of-way.

Various existing dirt roads will have to be rehabilitated, including grading and widening to support construction activities associated with the proposed SCE 66 kV sub-transmission modifications; in addition, an existing access road will have to be widened to provide equipment access during construction of the proposed SCE Natural Substation. The Proposed Project will require three on-site staging areas, totaling approximately 2.5 acres, to locate equipment and materials during construction of the proposed Central Compressor Station. These staging areas are all located in areas previously disturbed by the Storage Facility construction. Roads used during construction of the proposed Central Compressor Station are existing paved roads currently used by the Proponent. Additional access roads will not be required for construction activities.

4.8.4.1 Impact for Hydrology and Water Quality

The primary impact of the Proposed Project to hydrology and water quality occurs during the construction phase. Impacts from the Proposed Project during operation may occur but will be minor when compared to the potential impacts during construction. This impact analysis evaluates both construction and operational impacts together under each significance criteria.

The Proposed Project will require a total surface disturbance of on the order of less than 1 acre for the proposed Central Compressor station, 0.5 acre for the proposed SCE Natural Substation and 2.5 acres for the on-site staging areas. The proposed Central Compressor station, the proposed SCE Natural Substation and the staging areas are located within the Limekiln Canyon watershed. The Limekiln Canyon watershed has an area of 1,061acres. The Proposed Project will not affect more than 0.5% of the area of the watershed and so the total Proposed Project development will have a minor effect on the overall hydrologic characteristics of this watershed.

Permit and regulatory requirements will be achieved during the Proposed Project. Implementation of the construction-phase SWPPP will minimize the potential impacts from sediment and hazardous materials releases to water quality during construction of the Proposed Project. The Proposed Project is required to apply for coverage under the General Construction Activity NPDES Storm Water Permit. This permit is required for any construction activity that includes clearing, grading, excavation, reconstruction, and dredge and fills that result in the disturbance of at least one acre of total land area. The general permit requires preparation of a site-specific SWPPP that would include measures from the general permit to reduce potential for generating polluted storm water runoff. Any sediment in the storm water will be reduced by using BMPs as described in the SWPPP. The potential for water quality impacts are minimal, but would be further reduced or avoided through implementation of erosion control measures on-site.

Also during construction, small quantities of fuels may be transported and/or transferred within the alignment of the proposed SCE 66 kV sub-transmission modification and the Storage Facility in order to facilitate fueling of non-road licensed construction equipment. However construction equipment will routinely fuel at the marshalling yards and therefore minimize the quantity of temporary fuel storage Within the 66 kV sub-transmission alignment, most fueling is expected to be performed from a self-contained service vehicle. The site-specific SWPPP prepared for the construction will also include BMPs to address transportation, transfer and temporary storage of fuels or other hazardous materials. Only if the volume of fuel or oil stored on-site during construction is greater than 1,320 gallons, then a site-specific SPCC Plan would be required for the construction phase. A site-specific SPCC Plan would address transportation, transfer and temporary storage of fuels or oil similar to fuel or oil spill prevention BMPs in the SWPPP. Drips and spills would be contained or addressed on-site before they could come in contact with storm water and so not affect storm water quality. Implementation of BMPs in the SWPPP or implementation of a site-specific construction SPCC Plan would reduce the potential and minimize contact between drips or spills of construction related materials and storm water.

The volume of oil within the electrical equipment operating within the proposed SCE Natural Substation is expected to be greater than 1,320 gallons, and so a site-specific SPCC Plan would be required for the substation operation (40 CFR 112). A site-specific SPCC Plan would address transfer and use of oil in qualifying electrical equipment. Storm water containing drips or spills of potential pollutants will be treated, contained or addressed and cleaned up on site before being come in contact with storm water and so not affect storm water quality. The plan would also provide for spill prevention training of applicable personnel and maintaining spill cleanup equipment on hand. Implementation of a site-specific operational SPCC Plan would reduce potential impacts and minimize contact between drips or spills from qualifying oil containing equipment and storm water.

Within the Storage Facility, all transfer and storage of oil is controlled by the existing SPCC Plan. The volume of oil within the operating equipment for the proposed Central Compressor Station is expected to be greater than 1,320 gallons, and so either a site-specific SPCC Plan would be required for the proposed Central Compressor Station operation or the existing SPCC Plan for the Storage Facility would be amended. The plan also provides for spill prevention training of applicable personnel and maintaining spill cleanup equipment on hand. Implementation of this SPCC will minimize the potential for hazardous materials releases during new compressor station operation that could affect water quality.

Similarly the operation of the proposed Central Compressor Station will be incorporated into the existing SWPPP developed for the Storage Facility. A Notice of Change will be submitted to the RWQCB notifying the RWQCB of the facility additions. Implementation of the SWPPP will minimize the potential for hazardous materials releases during new compressor station operation that could affect water quality.

4.8.4.2 Significance Evaluation

The potential impact to hazards from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential hazards resource impacts, CEQA criteria were evaluated and are discussed together for construction and operations. Similarly the operation of the proposed Central Compressor Station will be incorporated into the existing SWPPP developed for the Storage Facility. A Notice of Change will be submitted to the RWQCB notifying the RWQCB of the facility additions. Implementation of the SWPPP will minimize the potential for hazardous materials releases during new compressor station operation that could affect water quality

Evaluation of the significance criteria for assessing the impacts to hydrology and water quality according to the CEQA Checklist significance criteria are:

Would the Proposed Project violate any water quality standards or waste discharge requirements?

The direction of storm water flow through the Proposed Project's staging areas, proposed Central Compressor Station site, proposed PPL, proposed SCE Natural Substation and alignment of the proposed SCE 66 kV sub-transmission modifications, presently flows over moderate to steep slopes into the natural canyon drainages, into LACDPW flood control channels and eventually to the Los Angeles River or Santa Clara River. If sediment or construction-related materials (diesel fuel, lubrication oil, hydraulic fluids, or antifreeze) are accumulated into storm water flow, they could be discharged from the site. The Federal Water Pollution Control Act (or the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General NPDES Permit, 99-08-DWQ) requires the development and implementation of a SWPPP which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters. SoCalGas will utilize and implement the existing facility and company BMP Manual to reduce and avoid potential water quality impacts during construction and operation.

The SWPPP will specify site-specific BMPs to limit or eliminate sediment or other pollutant discharges from each construction activity location. The BMPs will take into account the existing drainage controls at the Storage Facility and will include at a minimum erosion and sediment control BMPs and as well as material management BMPs such as hazardous materials (including fuel) handling procedures. Erosion control BMPs can be used to temporarily prevent erosion from concentrated storm water flows. Erosion BMPs prevent erosion by intercepting, diverting, conveying and discharging concentrated storm water flows in a manner that prevents soil detachment and transport. Temporary concentrated flow conveyance BMPs include:

- Temporary earth dikes and drainage swales to divert runoff water to desired location,
- Velocity dissipation devices such as rock, grouted rip-rap or concrete rubble that prevent scour caused by concentrated storm water flows, and
- Slope drain pipes used to intercept and direct surface runoff into a stabilized watercourse, trapping device or stabilized area

Sediment control BMPs trap soil that has become detached and moved by storm water. Sediment control BMPs rely on intercepting and slowing runoff and then filtering or settling the sediment particles Sediment control BMPs include:

- Silt Fences, fiber rolls, sand bag or straw bale barriers, or fiber rolls that temporarily detain storm water to allow settling of sediment particles
- Gravel bag berms or check dams that temporarily detain storm water and filter sediment particles,

Material management BMPs prevent, reduce or eliminate the discharge of pollutants from material delivery and storage locations. Material management BMPs include:

- Delivering and storing materials in a designated area
- Using secondary containments for materials storage area, and
- Training employees in the safe and proper use of hazardous materials

The implementation of the SWPPP requires inspecting, monitoring and maintaining BMPs. The potential impact of the proposed project to violate the CWA standards will be less than significant if the SWPPP includes erosion control, sediment control and material management BMPs, these BMPs are installed at appropriate locations and if these BMPs are monitored and maintained during construction.

As described in the Hazards and Hazardous Materials section of this PEA, operation of the proposed SCE Natural Substation includes the use of transformer oil in electrical transformers. This material could impact water quality if it were catastrophically released, or released during a period of rainfall. The anticipated quantity of oil at the proposed Natural substation (regardless of which specific location is selected) will exceed the threshold pursuant to CFR 40, Part 112, requiring preparation and implementation of a SPCC Plan. The SPCC Plan contains a number of specific measures including secondary containment, physical storm water controls, and operational controls such as oil handling procedures and employee training, designed to prevent oil releases.

In addition, the Storage Facility has in place an SPCC Plan for the existing operations. Any additional oil storage associated with the proposed Central Compressor Station is required to be incorporated into this existing plan. Incorporation of these SPCC Plans into the proposed SCE Natural Substation and proposed Central Compressor Station operations will assist in ensuring there is no significant impact relative to violations of water quality standards.

Would the Proposed Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level?

During installation of the TSPs that are part of the proposed SCE 66 kV sub-transmission modifications, there is a possibility that shallow groundwater would be encountered during drilling of the boreholes from foundation locations placed in alluvial deposits. It is expected that the construction techniques for the installation of the TSPs could require placement of these materials in the wet. If minor dewatering should occur, it would be for a short period of time and would not affect groundwater levels in the region. Any water removed during construction would be discharged in a manner consistent with applicable permits or collected and transferred to appropriate disposal facilities off site.

As a result, construction and operation of the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

The Proposed Project will require a total surface disturbance of less than 1 acre for the proposed Central Compressor Station, 0.5 acre for the proposed SCE Natural Substation and 2.5 acres for the on-site staging areas. The proposed Central Compressor Station, the SCE Natural Substation and the staging areas are located within the Limekiln Canyon watershed. The Limekiln Canyon watershed has an area of 1,061 acres. The proposed project will not affect more than 0.5% of the area of the watershed and so the total Proposed Project development will not substantially affect on the overall hydrologic characteristics of this watershed.

Construction of the proposed SCE 66 kV sub-transmission modifications would not require extensive grading or surface alteration around TSP sites or along public roads because existing transmission routes or easements would be used. Any grading that is needed would be minor (less than 0.1 acre at each site) and are spread out along the sub-transmission line and so the effect of each TSP site would not have a significant affect on the overall drainage patterns of each water shed. Drainage structures or temporary wet crossings may be installed for access in areas that cross natural surface water channels and will maintain existing drainage patterns. Based on the minor amount of grading for each TSP site, there would be less than significant impacts to drainage patterns leading to erosion during construction of the proposed SCE 66 kV sub-transmission modifications.

Construction of the proposed SCE Natural Substation as shown on Figure 3.1.3) would require excavation and filling to construct a level pad, dependent upon the existing grades and the final footprint of the proposed SCE Natural Substation The grading activities will alter the drainage pattern only on the proposed SCE Natural Substation's footprint and should not alter the overall drainage of the area because the proposed SCE Natural Substation footprint (on the order of 0.5-acre) is very small compared to the overall drainage area of Limekiln Canyon Watershed (1,061 acres).

The proposed SCE Natural Substation is proposed to be located on the top of a ridge in an area immediately adjacent to the existing SCE 66 kV sub-transmission line. This area has a relatively low slope, has room to accommodate the approximately 0.5 acre substation, and little area above that drains onto it. Therefore, the proposed SCE Natural Substation would similarly not alter the overall drainage pattern in the area. The proposed SCE Natural Substation is not located in the course of a stream or river and so would not alter the course of a stream or river.

Construction of the proposed Central Compressor Station would require grading on the order of 100,000 cubic yards. According to the pre-engineering study, the construction of the proposed Central Compressor Station will include proper drainage of surface and subsurface water runoff that is critical to the stability of the slopes and entire site. Subsurface drains will be installed at the bottom of the pre-existing canyon areas with outlets at the downstream end of the site. Back drains could be required on the north side of the site to be used in conjunction with the subsurface drains. Under drains could be required around the turbine foundations to intercept ground water. It is anticipated that the under drains and sub-drains will discharge to the Limekiln Creek Canyon creek to the south of the site (Washington Group, 2007)

Therefore, the design and construction of the proposed Central Compressor Station is expected to maintain pre existing conditions and will not have a significant effect on the existing drainage pattern of the area; and will not alter the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

As discussed above, the Proposed Project would not substantially alter existing drainage patterns of Limekiln Canyon watershed during construction. The Proposed Project will include less than 0.5 % of Limekiln Canyon water shed, an insignificant portion of the watershed. The Proposed Project would not substantially increase surface water runoff during rain events in this watershed and so would not increase the potential for flooding, on-site or off-site. Impacts would be less than significant.

Would the Proposed Project create or contribute to runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

As discussed above, the Proposed Project will include less than 0.5 % of the area of Limekiln Canyon water shed and so would not substantially increase surface water runoff during rain events. Since there is not a substantial increase in the amount of storm water runoff from the Proposed Project above existing conditions, the capacity of storm water systems in the area would not be exceeded. The potential for contamination to be present in storm water runoff is addressed in Section 4.7 Hazards and Hazardous Materials. Impacts to storm water drainage systems would be less than significant.

Would the Proposed Project otherwise substantially degrade water quality?

The construction of the Proposed Project and the operation of the Proposed Project will include hazardous materials with the potential to degrade water quality only if a significant spill of these materials occurred and was not addressed before the hazardous materials mixed with ground water or surface water. During construction, oil and fuel will be used for operation of construction equipment. During operation, the transformers in the SCE Natural Substation will contain oil. These hazardous materials have a potential to impact and degrade water quality if they are spilled. The Proposed Project will implement a SWPPP and a SPCC to prevent spills and also to address a spill and prevent contact with water. The SWPPP implemented for the Proposed Project construction would minimize the effects of any oil, fuel, or construction-related fluids that have the possibility of being leaked from equipment and discharged with storm water (refer to Section 4.7 Hazards and Hazardous Materials, for more information on the use and control of hazardous materials during construction). The SPCC implemented for the Proposed Project operation would minimize the effects of any oil that have a possibility of being leaked from transformer equipment and existing wells, which is discharged to water drainages. The SPCC will include a description of the containment surrounding the transformers and procedures for inspecting accumulated storm water from the containments to ensure that storm water quality is not impacted with oil before discharge to the drainage system. Implementation of the SWPPP and the SPCC will reduce the impact of the Proposed Project to less than significant for the risk of substantially degrading water quality.

Would the Proposed Project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Only a small portion (~ 2,000 feet) of the existing SCE 66 kV sub-transmission lines south of the Newhall Substation are located within a FEMA designated 100-year Flood Hazard Zone, as illustrated on Figure 4.8-1. The existing SCE 66 kV sub-transmission lines are supported by towers. The existing towers will be replaced with engineered tubular steel poles (TSPs) and the line will be re-conductored. The existing towers have four legs with connecting cross beams located at the base of each tower. TSPs are a single steel pole. During a flood event, organic debris including tree branches would be more likely to be caught and retained on the existing towers than the proposed TSPs because the existing towers have more surfaces and more surface area perpendicular to the direction of the flood flow than the TSPs. Therefore the existing towers have a greater probability to retain organic debris that could impede or redirect a flood flow than the proposed TSPs. The TSPs will replace the existing towers and so will reduce the potential to impede or redirect flood flows due to accumulated debris at the base. Therefore there is less than significant impact from the replacement of the existing towers with the proposed TSPs.

The proposed SCE Natural Substation and the proposed Central Compressor Station are not located within a FEMA designated flood zone. Therefore, there is a less than significant impact on placing structures in a 100-year flood hazard that could impede flood flows.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?

The Proposed Project is located more than 15 miles from the Pacific Ocean at an elevation about 1,800 feet above MSL, and reasonably beyond the impact of a tsunami.

Review of the State of California Department of Mines and Geology seismic hazards maps for the Oat Mountain and Newhall quadrangles (CDMG, 1998) indicates that the Proposed Project is located within areas of earthquake induced landslide potential (refer to Section 4.6 Geology, Soils, and Seismicity, for more information). The final design of the Proposed Project, including the proposed SCE 66 kV sub-transmission modifications, will include geotechnical considerations to address any potential effects from landslides.

The Proposed Project is not located down stream of a levee or dam or a water body that could fail due to or be affected by a seiche in the event of moderate or stronger ground motion. Therefore the Proposed Project would not impede flood flows from a seiche and so could not expose people or structures to a significant risk from a flood flow due to seiche. The Proposed Project would not have an impact to the risk from a flood flow due to seiche.

Based on the above, the Proposed Project will not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Would the Proposed Project place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Because the Proposed Project does not involve housing, there would be no impacts associated with placing housing within a 100-year floodplain.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

The Proposed Project is not located down stream of a levee or dam or a water body. The proposed SCE Natural Substation and the proposed SoCalGas Central Compressor Station are not located within a FEMA designated flood zone. Only a small portion (~ 2,000 feet) of SCE's existing 66 kV sub-transmission lines south of the Newhall Substation are located within a FEMA designated 100-year Flood Hazard Zone.

The existing SCE MacNeil-Newhall-San Fernando and Chatsworth-MacNeil-Newhall-San Fernando existing source lines are supported on the same towers. The existing towers will be replaced with TSPs and the line will be re-conductored to one span south of the SCE Chatsworth Tap. The existing towers have four legs with connecting cross beams located at the base of each tower. TSPs are a single steel pole. During a flood event, organic debris including tree branches would be more likely to be caught and retained on the existing towers than the proposed TSPs because the existing towers have more surfaces and more surface area perpendicular to the direction of the flood flow than the TSPs. Therefore the existing towers have a greater probability to retain organic debris that could impede or redirect a flood flow than the proposed TSPs. The existing towers have a greater potential to expose people or structures to the risk of flooding from impeding or redirecting flood flows. The TSPs will replace the existing towers and so will reduce the potential to impede or redirect flood flow due to accumulated debris at the base and so will reduce the potential to expose people or structures to a significant risk from flooding. Therefore the impact of replacing the existing towers with TSPs will result in a reduced potential to expose people or structures to a significant risk from flooding and will result in a reduced or no impact of the Proposed Project to exposing people or structures to a significant risk from flooding.

4.8.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** due to construction and operation; therefore no mitigation is measures are recommended. As identified above, the Proponent intends to comply with all applicable regulatory and permit requirements that are designed to minimize impacts to hydrology and water quality. Compliance plans that will be implemented include a construction phase SWPPP, a separate SPCC Plan for the proposed SCE Natural Substation and an update of the existing SWPPP and SPCC Plan developed for the Storage Facility including the Central Compressor station. If any BMPs are required or proposed by either Los Angeles County of the City of Los Angeles for storm water mitigation, the design will include these measures.

4.8.6 References

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4.8 Hydrology and Water Quality

This section describes potential hydrology and water quality impacts associated with construction and operation of the Proposed Project.

Project components that do not involve ground disturbance or groundwater impacts were not evaluated in this section. These components include installation of upgraded relay systems and equipment at the SCE Newhall, Chatsworth, and San Fernando Substations.

4.8.1 Existing Hydrology and Water Quality Setting

The Proposed Project lies within both the Santa Clara River Valley watershed and the Los Angeles River (San Fernando Valley) watershed, as presented on Figure 4.8-1 Hydrology and Floodplains. These watersheds are divided by the east/west trending Santa Susana Mountains. The Proposed Project components including the proposed Central Compressor Station, proposed office trailer and guard house relocation, proposed SCE Natural Substation and almost half of the proposed SCE 66 kV sub-transmission lines are located within and south of the Santa Susana Mountains in the Los Angeles River watershed. The remainder of the proposed SCE 66 kV sub-transmission line modification is located in the Santa Clara River Valley watershed, north of the Santa Susana Mountains.

The Santa Clara River Valley watershed encompasses the Santa Clara River, the largest river system in southern California that remains in a relatively natural state. The river originates in the northern slopes of the San Gabriel Mountains in north Los Angeles County, traverses in a westerly direction into Ventura County, and discharges into the Pacific Ocean near the city of Ventura. The river runs approximately 100 miles from its headwaters near Acton, California, to its outlet, and drains an area of approximately 1,600 square miles. The entire Proposed Project is located south of the Santa Clara River; the closest component is the proposed SCE 66 kV sub-transmission line modification originating at the SCE Newhall Substation, located approximately 1.4 miles south of the Santa Clara River.

For ease of reference, the portion of the Santa Clara River within Los Angeles County is generally referred to as Upper Santa Clara River. The portion within Ventura County is generally referred to as Lower Santa Clara River. The proposed SCE 66 kV sub-transmission modification, which originates at the SCE Newhall Substation and travels through Gavin Canyon, is north of the Santa Susana Mountains within Los Angeles County and therefore drains toward the Upper Santa Clara River.

The Upper Santa Clara River watershed consists of approximately 680 square miles of mostly natural land with some mixed use developed areas. Some of the major tributaries in the Upper Santa Clara River watershed include Castaic Creek, San Francisquito Canyon, Bouquet Canyon, Sand Canyon, Mint Canyon, and the South Fork of the Santa Clara River (Los Angeles County Department of Public Works [LACDPW], 2009a). The proposed SCE 66 kV sub-transmission modification, which originates at the SCE Newhall Substation, is located within the drainage of the South Fork of the Santa Clara River tributary and is primarily located within open space, next to a transportation corridor but also within commercial and residential areas. The upstream portion of the proposed SCE 66 kV sub-transmission modification is within open space next to the transportation corridor and the downstream portion is within commercial and residential areas. Existing land uses are further described in Section 4.9 Land Use and Planning.

In general, the Santa Clara River Valley watershed is semi-arid, and receives an average range of 14 inches to 16 inches of rainfall per year. Nearly all of the rainfall occurs between the months of November and March. The surface waters are primarily arroyos and normally dry creeks that have historically carried storm flows and post-storm flows from the upper watershed down to the alluvial valleys (California Department of Water Resources, [DWR], 2004). As discussed later, storm water flows of sufficient intensity will reach the Santa Clara River from the upper portion of the watershed where the Proposed Project is located.

The Los Angeles River watershed covers a land area of over 834 square miles including the eastern portions of the Santa Monica Mountains, the Simi Hills, and the Santa Susana Mountains to the San Gabriel Mountains in the west. The watershed encompasses and is shaped by the path of the Los Angeles River that flows from its headwaters in the western portion of the San Fernando Valley eastward to the Glendale Narrows, where it turns southward and flows across the Los Angeles coastal plain into San Pedro Bay. The Los Angeles River includes diverse patterns of land use; the upper portion is mostly forest, chaparral, and open space, while the lower portion is highly intensive commercial, industrial and residential land use. The major tributaries of the Los Angeles River include Burbank Western Channel, Pacoima Wash/Tujunga Wash, Aliso Canyon Wash, Bull Creek, and Verdugo Wash in the San Fernando Valley; and the Arroyo Seco, Compton Creek, and Rio Hondo south of the Glendale Narrows (LACDPW, 2009b). As discussed later, storm water flows of sufficient intensity will reach the Los Angeles River from the upper portion of the watershed where the Proposed Project is located.

The proposed SCE 66 kV sub-transmission modification located north of the SCE Chatsworth Tap to the Storage Field (see Figure 3.1-2), where project components including the proposed SCE Natural Substation, the proposed Central Compressor Station, the proposed PPL, the proposed office trailer relocation, and proposed guard house relocation are located in and south of the Santa Susanna Mountains. These components are within the drainage areas of the Aliso Canyon Wash and Bull Creek tributaries of the Los Angeles River. Project components located in upstream portions of the tributaries are located primarily in undeveloped open space or developed as the Aliso Canyon Natural Gas Storage Field; the lower portions of these tributaries are located in fully developed residential areas. Existing land use is further described in Section 4.9 Land Use and Planning.

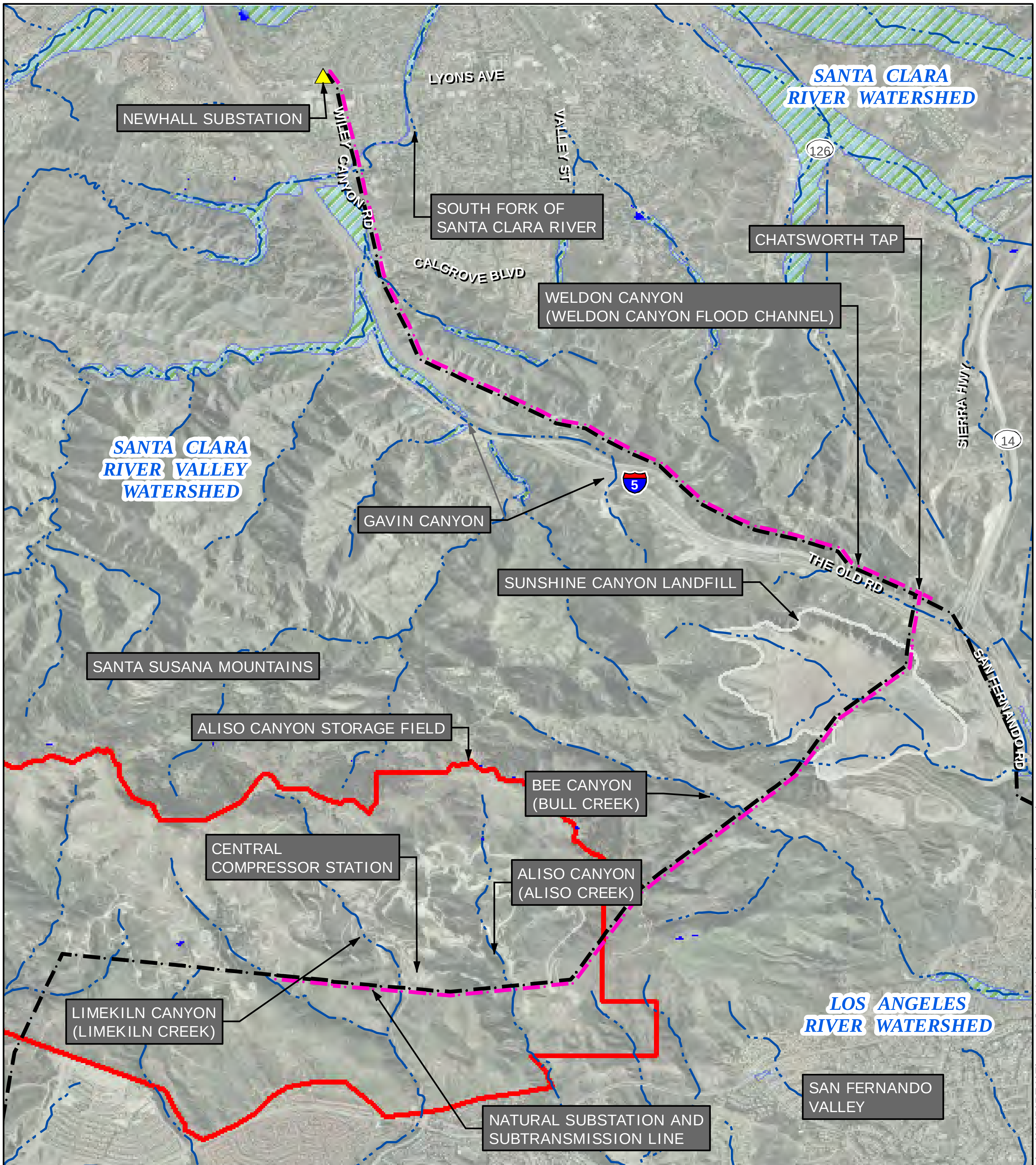
The Los Angeles River Watershed has 22 lakes within its boundaries including Devil Gates Dam, Hansen Basin, Lopez Dam, Pacoima Dam, and the Sepulveda Basin. In addition, there are a number of spreading grounds in the watershed including sites at Dominguez Gap, the Headworks, Hansen Dam, Lopez Dam, and Pacoima Dam.(LACDPW, 2009b). A portion of the proposed SCE 66 kV sub-transmission modification located to the west of the SCE Chatsworth Tap is located upgradient of the Los Angeles Reservoir, however the upgradient storm water flows are diverted around the Los Angeles Reservoir in Bull Creek.

The Los Angeles watershed receives an average range of 15 to 23 inches of rainfall per year. Similar to the Santa Clara River Valley watershed, nearly all of the rainfall occurs between the months of November and March (DWR, 2004)

In mountain areas, the steep canyon slopes and channel gradients promote a rapid concentration of storm runoff. Depression storage and detention storage effects are minor in the rugged terrain. Soil moisture during a storm has a pronounced effect on runoff from the porous soil supporting a good growth of deep-rooted vegetation such as chaparral. Soil moisture deficiency is greatest at the beginning of a rainy season, having been depleted by the evapotranspiration process during the dry summer months. Precipitation during periods of soil moisture deficiency is nearly entirely absorbed by soil, and except for periods of extremely intense rainfall, significant runoff does not occur until soil is wetted to capacity. Due to high infiltration rates and porosity of mountain soil, runoff occurs primarily as subsurface flow or interflow in addition to direct runoff. Consequently, most streams in the County are ephemeral.

Storm water runoff occurs after the soil has become saturated and the steep canyon slopes and channel gradients in the upper portion of these watersheds promote a rapid concentration of storm water runoff into the normally dry creeks or washes. The LACDPW has constructed and also maintains concrete flood control channels for the lower portions of these creeks or washes that are located in developed (primarily for residential) areas of the watersheds within Los Angeles County. The Proposed Project is located in areas upstream of LACDPW flood control channels. The closest concrete lined flood control channel to the Proposed Project is the South Fork of the Santa Clara River north of Lyons Road that is adjacent to the proposed SCE 66 kV sub-transmission modification originating at the SCE Newhall Substation. The remainder of the Proposed Project including the proposed SCE 66 kV sub-transmission line modification starting just north of the SCE Chatsworth Tap to the project components within the Storage Field are located upstream and at least 1.25 miles north of the following concrete lined channels: Bull Creek east of Balboa Boulevard, Aliso Creek/Wilbur Creek south of the Ronald Reagan Freeway (118) and Limekiln Creek/Wash south of Devonshire (LACDPW, 2009). The proposed SCE 66 kV sub-transmission modification within the I-5 transportation corridor right of way at the SCE Chatsworth Tap is directly upstream of the Weldon Canyon Flood Control Channel south of San Fernando Road.

The existing SCE 66 kV sub-transmission lines originating at SCE's Newhall Substation, which travels up into Gavin Canyon is located within the south eastern portion of the Santa Clara River Valley watershed, and within the Santa Clara River South Fork drainage area. According to the Newhall Quadrangle topographic map, the surface water drainage for this component of the project drains in an unnamed creek to the north via Gavin Canyon into the South Fork of the Santa Clara River (USGS, 1988), as shown on Figure 4.8-1. The SCE Newhall Substation is located in the City of Santa Clarita, which has developed a storm water system to collect storm water from the developed commercial and residential areas and is connected to the LACDPW flood control system. The SCE 66 kV sub-transmission system south of the SCE Newhall Substation is partially (~ 2,000 feet) located within the South Fork of the Santa Clara River 100 year flood zone (according to FEMA maps), an area that is mixed (commercial/industrial) land use. However the majority (~ 3.5 miles) of the SCE 66 kV sub-transmission system south of the SCE Newhall Substation is located in open space mountain areas adjacent to the I-5 transportation corridor as shown on Figure 4.8-1.



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Existing SCE Substation
- Sunshine Canyon Landfill
- Aliso Canyon Storage Field
- 100 Year Floodzone
- NHD Watercourse
- NHD Waterbody

1 inch = 4,000 feet

0 4,000 8,000 Feet

N E S W

Aliso Canyon PEA

Figure 4.8-1 Hydrology and Floodplains

Source: FEMA 2009, NHD 2009, USGS 1969

Southern California Gas Company — A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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The proposed SCE 66 kV sub-transmission modification, located between Weldon Canyon and the Storage Field, is located in mountain and canyon open space areas that have existing natural drainage courses as described below that ultimately connect to LACDPW concrete lined channels with the following exceptions. The portion of the SCE 66 kV sub-transmission line in Weldon Canyon is located in a transportation corridor with bordering open space and commercial development; the storm water drainage connects directly to a LACDPW flood control channel and the portion of the SCE 66 kV sub-transmission line that is located immediately south and west of the I-5 highway in Weldon Canyon drains into the Sunshine Canyon Landfill property. This property has been developed for a municipal landfill that has an engineered storm drain system including a sedimentation basin.

The portion of the SCE 66 kV sub-transmission line between Weldon Canyon and the proposed SCE Natural Substation is located in the mountain areas of the upper portions of the Los Angeles River Watershed. The proposed SCE Natural Substation and the proposed Central Compressor Station are located in the Limekiln Canyon watershed that has an area of 1,061 acres (LACDPW, 2008). Limekiln Canyon water shed is in the north western portion of the Los Angeles River watershed and bordering the southern edge of the Santa Clara River Valley watershed. Both of these components are located in an area that was developed for an oil field and redeveloped for a natural gas storage facility. The alignment of the proposed SCE 66 kV sub-transmission modification west of Weldon Canyon is located in several watersheds as the alignment crosses Sunshine Canyon, Bee Canyon, Aliso Canyon, and Limekiln Canyon (LACDPW, 2009). These canyons are indicated on Figure 4.8-1, Hydrology and Floodplains. Sunshine Canyon, Bee Canyon, Aliso Canyon, and Limekiln Canyon are drained by Weldon Canyon Flood Control Channel, Bull Creek, Aliso Creek/Wilbur Creek and Limekiln Creek/Wash, all of which are tributaries of the Los Angeles River. The land use in these canyons where these creeks originate is open space or has been developed for natural gas storage and once these creeks exit the canyons the land use around the down stream portions of these creeks is developed for residential or commercial uses. The SCE 66 kV sub-transmission system crosses over these creeks; the proposed Central Compressor Station, proposed office trailer and guard house relocation, and proposed SCE Natural Substation are located within 0.5 mile of Limekiln Creek.

As part of the County flood control program, LACDPW has constructed and maintains debris basins. Debris basins are generally located in residential or commercial areas immediately down stream of open space, mountainous areas. The function of debris basins is to retain sediment and vegetative debris that are swept down from the open space areas as well as control storm water flows. They are usually designed for allowing multiple years of deposition before cleaning, however annual debris and sediment production is increased significantly after a fire occurs in a watershed. The Proposed Project, including the proposed Central Compressor Station, proposed SCE Natural Substation and the proposed SCE 66 kV sub-transmission modifications are located in or cross Limekiln, Aliso and Bee Canyons. These canyons are upstream of LACDPW flood control debris basins. The closest debris basins to the Proposed Project and existing SCE 66 kV sub-transmission lines are the Limekiln Debris Basin (~1.6 mile south), the Aliso Debris Basin (~ 1.5 miles south) and Bull Creeks in the Los Angeles River watershed.

A segment of the existing SCE 66 kV sub-transmission line south and west of the SCE Chatsworth Tap crosses over the Sunshine Canyon Landfill. The Sunshine Canyon Landfill constructed and maintains sedimentation basins for storm water control of the entire developed landfill footprint as well as storm water run on from the less developed canyons up stream of the landfill (Stirrat, 2008).

In general, the alignment of the proposed SCE 66 kV sub-transmission modification is not located within a Federal Emergency Management Agency (FEMA) 100-year designated flood zone with one exception. The FEMA 100-year floodplains in the vicinity of the Proposed Project are shown on Figure 4.8-1, Hydrology and Floodplains. Only a small portion (~ 2,000 feet) of SCE's existing 66 kV sub-transmission lines south of SCE's Newhall Substation are located within a FEMA designated 100-year Flood Hazard Zone. This section of the existing sub-transmission line, known as the SCE MacNeil-Newhall-San Fernando 66 kV existing source line, is supported by steel lattice frame towers. For the Proposed Project the towers will be replaced with TSPs and the line will be re-conductored. The existing towers have four legs with connecting cross beams located at the base of each tower. TSPs are a single steel pole.

The Proposed Project, including portions of SCE's existing 66 kV sub-transmission system associated with the Proposed Project, are not located in or downstream of any surface water bodies or on-site detention basins.. The closest water bodies to the Proposed Project and existing 66 kV sub-transmission lines in the Santa Clara River Valley East Sub basin are Castaic Lake, Piru Lake, Pyramid Lake, and Bouquet Reservoir, all of which are more than 5 miles from the Proposed Project. The closest water bodies to the Proposed Project, and existing 66 kV sub-transmission line in the Upper Los Angeles River basin include the Van Norman Lakes, Los Angeles Reservoir, Pacoima Reservoir and Chatsworth Reservoir. Of these, the Los Angeles Reservoir is about 1.5 miles from the proposed 66 kV sub-transmission modification.

The Los Angeles River watershed has impaired water quality in the middle and lower portions of the basin due to runoff from dense clusters of commercial, industrial, residential, and other urban activities and not from the upper portions of the basin that are open space and less developed. Section 303(d) of the CWA requires that states make a list of waters that are not attaining standards after the technology-based limits are put into place. As of 2006, the Los Angeles RWQCB designated the following water bodies as impaired with associated pollutants: Aliso Canyon Wash for copper, fecal coliform and selenium; Bull Creek for indicator bacteria, and the Los Angeles River Reach 5 for ammonia, coliform bacteria, copper, lead, nutrients (algae) and trash. These water bodies and associated pollutants were recently proposed (as of July 2009) by the Los Angeles RWQCB to the EPA to remain on the Section 303(d) list. None of the other creeks previously described as downstream of the Proposed Project are on the proposed list (SWRCB, 2009 and LACDPW, 2009). The alignment of the proposed SCE 66 kV sub-transmission modification will cross Aliso Canyon Creek and Bull Creek in the upstream portions of these creeks that are currently open space. These creeks intersect the Los Angeles River Reach 5, after flowing through areas with commercial, industrial and residential uses and over 5 miles south of the Proposed Project.

Groundwater

Groundwater in the County of Los Angeles is stored in basins underlying five major geographic areas. These groundwater basins are separated by geologic features which impede groundwater movement, or by political boundaries. These basins are the Upper San Fernando, San Gabriel Valley, the Coastal Plain, Santa Clarita Valley and Antelope Valley. The San Fernando Valley is also known as the Upper Los Angeles River Area. Most of the runoff from the surrounding mountains flows to the Valley. The Valley is composed of four basins: the San Fernando Mina, Sylmar, Verdugo and Eagle Rock (DWR, 2004).

The Proposed Project and the existing 66 kV sub-transmission lines lay within the Santa Clara River Valley East Sub basin and north of (outside) the San Fernando Valley (Los Angeles River) groundwater basins. Similar to the watersheds, these two groundwater basins are divided by the Santa Susana Mountains.

Groundwater is encountered in alluvium, terrace deposits and the Saugus Formation of the Santa Clara River Valley basin. Terrace deposits generally lie above the water table and likely have limited ability to supply ground water to wells (DWR, 2004).

During installation of the TSPs that are part of the proposed SCE 66 kV sub-transmission modifications, there is a possibility that shallow groundwater would be encountered during drilling of the boreholes from foundation locations placed in alluvial deposits. If water is encountered during drilling for TSP foundations, SCE would evaluate the stability of the strata. If the strata are stable, SCE would continue drilling, set the rebar cage, and fill the hole with concrete.

If SCE determines the strata are unstable, SCE will use drilling mud, a mixture of clay, usually bentonite, and water to fill the hole to above the water level. Special chemicals are added to the mud to compensate for the varying composition of the water and the formation being drilled and to increase the weight of the column. The drilling mud, by hydrostatic pressure, also helps prevent the collapse of unstable strata into the hole and the intrusion of water from water-bearing strata that may be encountered. After the hole is drilled, SCE will set the rebar cage and fill the hole with concrete. If caving continues to be a problem with the addition of the drilling mud, SCE would fill the hole with 2-sack concrete, allow it to set, and continue drilling. If this does not solve the problem, SCE would drive a steel casing into the hole to prevent additional caving, set the rebar cage, and fill the hole with concrete.

Any displaced water would be allowed to run off, provided no contaminants, if allowed by the LGA. SCE will vacuum the drillers mud into a vacuum truck from within the excavated hole, and properly dispose of the drillers mud. Any excavated 2-sack concrete slurry will be hauled away and properly disposed of. It is expected that the construction techniques for the installation of the TSPs could require either minor dewatering for rebar and concrete placement or placement of these materials in the wet. If minor dewatering should occur, it would be for a short period of time and would not affect groundwater levels in the region. Any water removed during construction would be discharged in a manner consistent with applicable permits or collected and transferred to appropriate disposal facilities off site.

The construction of the proposed Central Compressor station will include proper drainage of surface and subsurface water runoff that is critical to the stability of the slopes and entire site. Subsurface drains will be installed at the bottom of the pre-existing canyon areas with outlets at the downstream end of the site. Back drains could be required on the north side of the site to be used in conjunction with the subsurface drains. Under drains could be required around the turbine foundations to intercept ground water. It is anticipated that the under drains and sub-drains will discharge to the existing Limekiln Canyon Creek (Washington Group, 2007) that is adjacent to the southwest of the site). If minor dewatering is required for construction, it would be for a short period of time and would not affect groundwater levels in the region. Any water removed during construction would be discharged in a manner consistent with applicable permits or collected and transferred to appropriate disposal facilities off site.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

The following regulations from the Federal government regarding water quality are applicable to the Proposed Project:

Federal Clean Water Act - The Federal CWA, as amended by the Water Quality Act of 1987, regulates water quality in the United States. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. These waters include all navigable waters and tributaries thereto, and adjacent wetlands. Wetlands and permanent and intermittent drainages, creeks, and streams are generally subject to the jurisdiction of the USACE under Section 404 of the Federal CWA. By USACE definition, all aquatic or riverine habitats between the "ordinary high water mark" of rivers, creeks, and streams are potentially considered "waters of the United States" and may fall under USACE jurisdiction. Any deposit of fill into waters of the US, including wetlands, requires the acquisition of a permit from the USACE pursuant to Section 404 of the Federal CWA. Refer to Section 4.4 Biological Resources for the evaluation of the Proposed Project and the existing 66 kV sub-transmission system regarding this regulation.

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. The EPA has authorized the Regional Water Quality Control Board (RWQCB) to implement this program. Further discussion of the RWQCB implementation of this program is presented below.

Section 402 of the Clean Water Act. The State Water Resource Control Board (SWRCB) administers a statewide NPDES general construction storm water permit that covers a variety of construction activities that could result in wastewater discharges. Under this General Permit the State issues a project-level construction permit for projects that disturb more than an acre of land. The SWRCB Construction General Storm Water Permit process involves notification of the construction activity by providing a Notice of Intent (NOI) to the SWRCB; development of a SWPPP; and implementation of specific monitoring activities. The SWPPP outlines construction methods to avoid and minimize movement of sediment and pollutants into storm water. The Clean Water Act (33 U.S.C. Section 1342 (l)(2)) exempts Natural Gas Transmission projects to waters of the United States from the necessity for obtaining coverage under this state administered NPDES General Construction Storm Water Permit but requires storm water BMPs and prohibits the exceedance of Water Quality Standards. Construction storm water BMPs from the company's Water Quality Construction BMP Manual will be implemented during construction related activities conducted by SoCalGas to proactively protect storm water. The portion of the project involving electric transmission will notify for coverage under the NPDES General Construction Storm Water Permit and a SWPPP with appropriate BMPs will be developed. Any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. The EPA has authorized the Regional Water Quality Control Board

(RWQCB) to implement this program. Further discussion of the RWQCB implementation of this program is presented below.

State/County Plans, Policies, Regulations, and Laws

The following regulations and policies from the State of California regarding water quality are applicable to the Proposed Project.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act (Porter-Cologne) provides a comprehensive water quality management system for the protection of California waters. Porter-Cologne designates the SWRCB as the ultimate authority over state water rights and water quality policy, and also establishes nine RWQCBs that oversee water quality at the local and regional levels. The SWRCB and RWQCBs have the responsibility for issuing permits for certain point-source discharges, and for regulating construction and storm water runoff.

The SWRCB and RWQCBs are responsible for developing and implementing regional basin plans to regulate all pollutants or nuisance discharges that may affect either surface water or groundwater. Basin plans are prepared by the RWQCBs to establish water quality standards for both surface and groundwater bodies within their respective jurisdictions. Basin plans designate beneficial uses for surface and groundwater, set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses, and describe implementation programs to protect all waters in the region.

The RWQCBs regulate discharges to waters within their respective jurisdictions through administration of Federal NPDES permits, waste discharge requirements, and water quality certifications. RWQCBs administer Section 401 water quality certifications to ensure that projects with federal 404 permits do not violate state water quality standards. The LARWQCB holds jurisdiction over the Proposed Project area.

The SWRCB has jurisdiction over depositing fill or dredging in “State Only Waters” and issues Waste Discharge Requirements (WDRs) for these projects. This may be applicable to the Proposed Project. The Proposed Project will consult with the Army Corps of Engineers and the SWRCB for any necessary permits or requirement to comply with this issue.

State General Storm Water Permits. In response to CWA requirements, the State of California has adopted general storm water permits covering nonpoint source discharges for certain types of discharges, including from activities at certain industrial facilities and from construction sites involving more than 1-acre of disturbance.

The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, Adopted as of September 2009) requires preparation of a SWPPP and implementation of BMPs to reduce the potential for non-storm water pollutants (chemicals and sediment) to be discharged from a construction site to waters of the State. The Proposed Project will be required to prepare a SWPPP because the Proposed Project will involve greater than 1-acre of ground disturbance and/or is part of a larger common plan of development that in total disturbs 1-acre or more. The Clean Water Act (33 U.S.C. Section 1342 (l)(2)) exempts Natural Gas Transmission projects to waters of the United States from the necessity for obtaining coverage under this state administered NPDES General Construction Storm Water Permit but requires storm water BMPs and prohibits the exceedance of Water Quality Standards. Construction storm water BMPs from the company’s Water Quality Construction BMP Manual will be implemented during construction related activities conducted by SoCalGas to proactively protect storm water. The portion of the project involving electric transmission will notify for coverage under the NPDES General Construction Storm Water Permit and a SWPPP with appropriate BMPs will be developed.

The Storage Facility is currently covered under the General Industrial Permit. Changes to the facility as a result of the Proposed Project, e.g., addition of the proposed Central Compressor Station, are required to be incorporated into the existing facility SWPPP. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology (BAT) economically achievable and best conventional pollutant control technology (BCT). The General Industrial Permit also requires development of a SWPPP as well as a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution are described (LARWQCB, 2009). If the General Industrial Permit is revised, the Facility will submit documentation as required and comply with the new permit.

Regional and Local Plans, Policies, Regulations, and Ordinances

The following regulations and policies from Los Angeles County regarding hydrology or water quality are applicable to the Proposed Project.

County of Los Angeles. If the project involves cutting or filling more than 50 cubic yards of soil, LACDPW requires a grading permit for the project per Title 26, Chapter 33 of the Los Angeles County Code. If drainage or other protective structures are affected by the grading program, the County requires that the grading plan state that these structures will be maintained in good condition and an inspection program shall be implemented to prevent damage from burrowing rodents. If the Los Angeles County Flood Control District ROW is affected, all work shall conform to the applicable Flood Control permit.

County of Los Angeles. If grading authorized by the grading permit is to extend into or through the rainy season (November 1 to April 15 of the following year) separate updated plans for erosion control must be submitted to the LACDPW prior to October 1 per Section 3319.3 of the County of Los Angeles Building Code. SWPPP requirements must be integrated into the Erosion Control Plans per Title 62, Section 7010 of the Los Angeles County Code.

County of Los Angeles. The County of Los Angeles issued a Conditional Use Permit, Case No. 473-(5) for the Natural Gas Storage facility in 1974. Condition number 6 of this permit states that "provisions be made for all natural drainage to the satisfaction of the County Engineer. Drainage plans, including two drainage plans signed by a State of California certified professional engineer, shall be submitted to the County Engineer, Design Division for approval prior to grading or construction (LACDRP, 1974). The CUP limits of conformance are defined by Exhibit A, the facility "plot plan." The basis for a CUP revision is substantial conformance with the existing conditions of land use and Exhibit A. Please note that the LACDPW review process for the grading permit will include hydrologic evaluation and drainage designs, if required by LACDPW (LACDPW Grading Review Sheet, 2009). It is anticipated that the LACDPW review of the Proposed Project grading permit application will satisfy the Condition number 6.

The Proposed Project will comply with the existing regulations for storm water control as required by the County of Los Angeles Ordinance 22.52.2210. The Proposed Project will consult with the County to determine if the Proposed Project is required to incorporate appropriate storm water mitigation measures into the design of the project. The Development Planning for Stormwater Management – A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), dated September 2002, prepared by the LACDPW will be used as appropriate for the design of Best Management Practices to meet these standards.

4.8.2 Significance Criteria

The significance criteria for assessing the impacts to hydrology and water quality come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute to runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year floodplain, as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

4.8.3 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with hydrology or water quality resources.

4.8.4 Environmental Impacts

The Proposed Project includes the following construction activities: proposed Central Compressor Station, proposed SCE Natural Substation, and proposed SoCalGas PPL, proposed office trailer and guard house relocation, and proposed SCE 66 kV sub-transmission modifications. The Proposed Project includes minor modifications to three SCE substations within the existing SCE 66 kV sub-transmission alignment. Figure 4-8-1 shows the major project components.

The Proposed Project is located mainly on unincorporated Los Angeles County lands, with a small portion within the City of Santa Clarita in the southwest end of the Santa Clarita Valley. The southeastern section of the Proposed Project area lies within the city of Los Angeles. The existing SCE 66 kV sub-transmission alignment is located in a transitional zone between more developed areas of the city of Santa Clarita and undeveloped areas within Los Angeles County.

The location of the proposed SCE Natural Substation will be on the SoCalGas fee-owned property at the Aliso Canyon Storage facility, as shown on Figure 4-8-1. This location is west of the site proposed for the proposed Central Compressor Station.

The proposed Central Compressor Station will be constructed in an area that has been previously disturbed as part of the development of the natural gas storage facility. As part of the proposed Central Compressor Station construction, the existing office trailers will be relocated. The site for the relocated offices is also a previously disturbed site. There will not be any additional access roads constructed during construction of the proposed Central Compressor Station. The site is an existing developed area, with existing well-maintained roads.

The alignment of the proposed SCE 66 kV sub-transmission modification originates in a developed portion of Newhall, a community within the city of Santa Clarita. The modifications to the existing 66 kV sub-transmission system include pole replacement, re-conductoring, telecommunication stringing, and the addition of a new circuit segment from the SCE Chatsworth Tap to the proposed SCE Natural Substation. This component of the project will be conducted in a previously disturbed utility easements and rights-of-way.

Various existing dirt roads will have to be rehabilitated, including grading and widening to support construction activities associated with the proposed SCE 66 kV sub-transmission modifications; in addition, an existing access road will have to be widened to provide equipment access during construction of the proposed SCE Natural Substation. The Proposed Project will require three on-site staging areas, totaling approximately 2.5 acres, to locate equipment and materials during construction of the proposed Central Compressor Station. These staging areas are all located in areas previously disturbed by the Storage Facility construction. Roads used during construction of the proposed Central Compressor Station are existing paved roads currently used by the Proponent. Additional access roads will not be required for construction activities.

4.8.4.1 Impact for Hydrology and Water Quality

The primary impact of the Proposed Project to hydrology and water quality occurs during the construction phase. Impacts from the Proposed Project during operation may occur but will be minor when compared to the potential impacts during construction. This impact analysis evaluates both construction and operational impacts together under each significance criteria.

The Proposed Project will require a total surface disturbance of on the order of less than 1 acre for the proposed Central Compressor station, 0.5 acre for the proposed SCE Natural Substation and 2.5 acres for the on-site staging areas. The proposed Central Compressor station, the proposed SCE Natural Substation and the staging areas are located within the Limekiln Canyon watershed. The Limekiln Canyon watershed has an area of 1,061acres. The Proposed Project will not affect more than 0.5% of the area of the watershed and so the total Proposed Project development will have a minor effect on the overall hydrologic characteristics of this watershed.

Permit and regulatory requirements will be achieved during the Proposed Project. Implementation of the construction-phase SWPPP will minimize the potential impacts from sediment and hazardous materials releases to water quality during construction of the Proposed Project. The Proposed Project is required to apply for coverage under the General Construction Activity NPDES Storm Water Permit. This permit is required for any construction activity that includes clearing, grading, excavation, reconstruction, and dredge and fills that result in the disturbance of at least one acre of total land area. The general permit requires preparation of a site-specific SWPPP that would include measures from the general permit to reduce potential for generating polluted storm water runoff. Any sediment in the storm water will be reduced by using BMPs as described in the SWPPP. The potential for water quality impacts are minimal, but would be further reduced or avoided through implementation of erosion control measures on-site.

Also during construction, small quantities of fuels may be transported and/or transferred within the alignment of the proposed SCE 66 kV sub-transmission modification and the Storage Facility in order to facilitate fueling of non-road licensed construction equipment. However construction equipment will routinely fuel at the marshalling yards and therefore minimize the quantity of temporary fuel storage Within the 66 kV sub-transmission alignment, most fueling is expected to be performed from a self-contained service vehicle. The site-specific SWPPP prepared for the construction will also include BMPs to address transportation, transfer and temporary storage of fuels or other hazardous materials. Only if the volume of fuel or oil stored on-site during construction is greater than 1,320 gallons, then a site-specific SPCC Plan would be required for the construction phase. A site-specific SPCC Plan would address transportation, transfer and temporary storage of fuels or oil similar to fuel or oil spill prevention BMPs in the SWPPP. Drips and spills would be contained or addressed on-site before they could come in contact with storm water and so not affect storm water quality. Implementation of BMPs in the SWPPP or implementation of a site-specific construction SPCC Plan would reduce the potential and minimize contact between drips or spills of construction related materials and storm water.

The volume of oil within the electrical equipment operating within the proposed SCE Natural Substation is expected to be greater than 1,320 gallons, and so a site-specific SPCC Plan would be required for the substation operation (40 CFR 112). A site-specific SPCC Plan would address transfer and use of oil in qualifying electrical equipment. Storm water containing drips or spills of potential pollutants will be treated, contained or addressed and cleaned up on site before being come in contact with storm water and so not affect storm water quality. The plan would also provide for spill prevention training of applicable personnel and maintaining spill cleanup equipment on hand. Implementation of a site-specific operational SPCC Plan would reduce potential impacts and minimize contact between drips or spills from qualifying oil containing equipment and storm water.

Within the Storage Facility, all transfer and storage of oil is controlled by the existing SPCC Plan. The volume of oil within the operating equipment for the proposed Central Compressor Station is expected to be greater than 1,320 gallons, and so either a site-specific SPCC Plan would be required for the proposed Central Compressor Station operation or the existing SPCC Plan for the Storage Facility would be amended. The plan also provides for spill prevention training of applicable personnel and maintaining spill cleanup equipment on hand. Implementation of this SPCC will minimize the potential for hazardous materials releases during new compressor station operation that could affect water quality.

Similarly the operation of the proposed Central Compressor Station will be incorporated into the existing SWPPP developed for the Storage Facility. A Notice of Change will be submitted to the RWQCB notifying the RWQCB of the facility additions. Implementation of the SWPPP will minimize the potential for hazardous materials releases during new compressor station operation that could affect water quality.

4.8.4.2 Significance Evaluation

The potential impact to hazards from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential hazards resource impacts, CEQA criteria were evaluated and are discussed together for construction and operations. Similarly the operation of the proposed Central Compressor Station will be incorporated into the existing SWPPP developed for the Storage Facility. A Notice of Change will be submitted to the RWQCB notifying the RWQCB of the facility additions. Implementation of the SWPPP will minimize the potential for hazardous materials releases during new compressor station operation that could affect water quality

Evaluation of the significance criteria for assessing the impacts to hydrology and water quality according to the CEQA Checklist significance criteria are:

Would the Proposed Project violate any water quality standards or waste discharge requirements?

The direction of storm water flow through the Proposed Project's staging areas, proposed Central Compressor Station site, proposed PPL, proposed SCE Natural Substation and alignment of the proposed SCE 66 kV sub-transmission modifications, presently flows over moderate to steep slopes into the natural canyon drainages, into LACDPW flood control channels and eventually to the Los Angeles River or Santa Clara River. If sediment or construction-related materials (diesel fuel, lubrication oil, hydraulic fluids, or antifreeze) are accumulated into storm water flow, they could be discharged from the site. The Federal Water Pollution Control Act (or the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General NPDES Permit, 99-08-DWQ) requires the development and implementation of a SWPPP which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters. SoCalGas will utilize and implement the existing facility and company BMP Manual to reduce and avoid potential water quality impacts during construction and operation.

The SWPPP will specify site-specific BMPs to limit or eliminate sediment or other pollutant discharges from each construction activity location. The BMPs will take into account the existing drainage controls at the Storage Facility and will include at a minimum erosion and sediment control BMPs and as well as material management BMPs such as hazardous materials (including fuel) handling procedures. Erosion control BMPs can be used to temporarily prevent erosion from concentrated storm water flows. Erosion BMPs prevent erosion by intercepting, diverting, conveying and discharging concentrated storm water flows in a manner that prevents soil detachment and transport. Temporary concentrated flow conveyance BMPs include:

- Temporary earth dikes and drainage swales to divert runoff water to desired location,
- Velocity dissipation devices such as rock, grouted rip-rap or concrete rubble that prevent scour caused by concentrated storm water flows, and
- Slope drain pipes used to intercept and direct surface runoff into a stabilized watercourse, trapping device or stabilized area

Sediment control BMPs trap soil that has become detached and moved by storm water. Sediment control BMPs rely on intercepting and slowing runoff and then filtering or settling the sediment particles Sediment control BMPs include:

- Silt Fences, fiber rolls, sand bag or straw bale barriers, or fiber rolls that temporarily detain storm water to allow settling of sediment particles
- Gravel bag berms or check dams that temporarily detain storm water and filter sediment particles,

Material management BMPs prevent, reduce or eliminate the discharge of pollutants from material delivery and storage locations. Material management BMPs include:

- Delivering and storing materials in a designated area
- Using secondary containments for materials storage area, and
- Training employees in the safe and proper use of hazardous materials

The implementation of the SWPPP requires inspecting, monitoring and maintaining BMPs. The potential impact of the proposed project to violate the CWA standards will be less than significant if the SWPPP includes erosion control, sediment control and material management BMPs, these BMPs are installed at appropriate locations and if these BMPs are monitored and maintained during construction.

As described in the Hazards and Hazardous Materials section of this PEA, operation of the proposed SCE Natural Substation includes the use of transformer oil in electrical transformers. This material could impact water quality if it were catastrophically released, or released during a period of rainfall. The anticipated quantity of oil at the proposed Natural substation (regardless of which specific location is selected) will exceed the threshold pursuant to CFR 40, Part 112, requiring preparation and implementation of a SPCC Plan. The SPCC Plan contains a number of specific measures including secondary containment, physical storm water controls, and operational controls such as oil handling procedures and employee training, designed to prevent oil releases.

In addition, the Storage Facility has in place an SPCC Plan for the existing operations. Any additional oil storage associated with the proposed Central Compressor Station is required to be incorporated into this existing plan. Incorporation of these SPCC Plans into the proposed SCE Natural Substation and proposed Central Compressor Station operations will assist in ensuring there is no significant impact relative to violations of water quality standards.

Would the Proposed Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level?

During installation of the TSPs that are part of the proposed SCE 66 kV sub-transmission modifications, there is a possibility that shallow groundwater would be encountered during drilling of the boreholes from foundation locations placed in alluvial deposits. It is expected that the construction techniques for the installation of the TSPs could require placement of these materials in the wet. If minor dewatering should occur, it would be for a short period of time and would not affect groundwater levels in the region. Any water removed during construction would be discharged in a manner consistent with applicable permits or collected and transferred to appropriate disposal facilities off site.

As a result, construction and operation of the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

The Proposed Project will require a total surface disturbance of less than 1 acre for the proposed Central Compressor Station, 0.5 acre for the proposed SCE Natural Substation and 2.5 acres for the on-site staging areas. The proposed Central Compressor Station, the SCE Natural Substation and the staging areas are located within the Limekiln Canyon watershed. The Limekiln Canyon watershed has an area of 1,061 acres. The proposed project will not affect more than 0.5% of the area of the watershed and so the total Proposed Project development will not substantially affect on the overall hydrologic characteristics of this watershed.

Construction of the proposed SCE 66 kV sub-transmission modifications would not require extensive grading or surface alteration around TSP sites or along public roads because existing transmission routes or easements would be used. Any grading that is needed would be minor (less than 0.1 acre at each site) and are spread out along the sub-transmission line and so the effect of each TSP site would not have a significant affect on the overall drainage patterns of each water shed. Drainage structures or temporary wet crossings may be installed for access in areas that cross natural surface water channels and will maintain existing drainage patterns. Based on the minor amount of grading for each TSP site, there would be less than significant impacts to drainage patterns leading to erosion during construction of the proposed SCE 66 kV sub-transmission modifications.

Construction of the proposed SCE Natural Substation as shown on Figure 3.1.3) would require excavation and filling to construct a level pad, dependent upon the existing grades and the final footprint of the proposed SCE Natural Substation The grading activities will alter the drainage pattern only on the proposed SCE Natural Substation's footprint and should not alter the overall drainage of the area because the proposed SCE Natural Substation footprint (on the order of 0.5-acre) is very small compared to the overall drainage area of Limekiln Canyon Watershed (1,061 acres).

The proposed SCE Natural Substation is proposed to be located on the top of a ridge in an area immediately adjacent to the existing SCE 66 kV sub-transmission line. This area has a relatively low slope, has room to accommodate the approximately 0.5 acre substation, and little area above that drains onto it. Therefore, the proposed SCE Natural Substation would similarly not alter the overall drainage pattern in the area. The proposed SCE Natural Substation is not located in the course of a stream or river and so would not alter the course of a stream or river.

Construction of the proposed Central Compressor Station would require grading on the order of 100,000 cubic yards. According to the pre-engineering study, the construction of the proposed Central Compressor Station will include proper drainage of surface and subsurface water runoff that is critical to the stability of the slopes and entire site. Subsurface drains will be installed at the bottom of the pre-existing canyon areas with outlets at the downstream end of the site. Back drains could be required on the north side of the site to be used in conjunction with the subsurface drains. Under drains could be required around the turbine foundations to intercept ground water. It is anticipated that the under drains and sub-drains will discharge to the Limekiln Creek Canyon creek to the south of the site (Washington Group, 2007)

Therefore, the design and construction of the proposed Central Compressor Station is expected to maintain pre existing conditions and will not have a significant effect on the existing drainage pattern of the area; and will not alter the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

As discussed above, the Proposed Project would not substantially alter existing drainage patterns of Limekiln Canyon watershed during construction. The Proposed Project will include less than 0.5 % of Limekiln Canyon water shed, an insignificant portion of the watershed. The Proposed Project would not substantially increase surface water runoff during rain events in this watershed and so would not increase the potential for flooding, on-site or off-site. Impacts would be less than significant.

Would the Proposed Project create or contribute to runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

As discussed above, the Proposed Project will include less than 0.5 % of the area of Limekiln Canyon water shed and so would not substantially increase surface water runoff during rain events. Since there is not a substantial increase in the amount of storm water runoff from the Proposed Project above existing conditions, the capacity of storm water systems in the area would not be exceeded. The potential for contamination to be present in storm water runoff is addressed in Section 4.7 Hazards and Hazardous Materials. Impacts to storm water drainage systems would be less than significant.

Would the Proposed Project otherwise substantially degrade water quality?

The construction of the Proposed Project and the operation of the Proposed Project will include hazardous materials with the potential to degrade water quality only if a significant spill of these materials occurred and was not addressed before the hazardous materials mixed with ground water or surface water. During construction, oil and fuel will be used for operation of construction equipment. During operation, the transformers in the SCE Natural Substation will contain oil. These hazardous materials have a potential to impact and degrade water quality if they are spilled. The Proposed Project will implement a SWPPP and a SPCC to prevent spills and also to address a spill and prevent contact with water. The SWPPP implemented for the Proposed Project construction would minimize the effects of any oil, fuel, or construction-related fluids that have the possibility of being leaked from equipment and discharged with storm water (refer to Section 4.7 Hazards and Hazardous Materials, for more information on the use and control of hazardous materials during construction). The SPCC implemented for the Proposed Project operation would minimize the effects of any oil that have a possibility of being leaked from transformer equipment and existing wells, which is discharged to water drainages. The SPCC will include a description of the containment surrounding the transformers and procedures for inspecting accumulated storm water from the containments to ensure that storm water quality is not impacted with oil before discharge to the drainage system. Implementation of the SWPPP and the SPCC will reduce the impact of the Proposed Project to less than significant for the risk of substantially degrading water quality.

Would the Proposed Project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Only a small portion (~ 2,000 feet) of the existing SCE 66 kV sub-transmission lines south of the Newhall Substation are located within a FEMA designated 100-year Flood Hazard Zone, as illustrated on Figure 4.8-1. The existing SCE 66 kV sub-transmission lines are supported by towers. The existing towers will be replaced with engineered tubular steel poles (TSPs) and the line will be re-conductored. The existing towers have four legs with connecting cross beams located at the base of each tower. TSPs are a single steel pole. During a flood event, organic debris including tree branches would be more likely to be caught and retained on the existing towers than the proposed TSPs because the existing towers have more surfaces and more surface area perpendicular to the direction of the flood flow than the TSPs. Therefore the existing towers have a greater probability to retain organic debris that could impede or redirect a flood flow than the proposed TSPs. The TSPs will replace the existing towers and so will reduce the potential to impede or redirect flood flows due to accumulated debris at the base. Therefore there is less than significant impact from the replacement of the existing towers with the proposed TSPs.

The proposed SCE Natural Substation and the proposed Central Compressor Station are not located within a FEMA designated flood zone. Therefore, there is a less than significant impact on placing structures in a 100-year flood hazard that could impede flood flows.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?

The Proposed Project is located more than 15 miles from the Pacific Ocean at an elevation about 1,800 feet above MSL, and reasonably beyond the impact of a tsunami.

Review of the State of California Department of Mines and Geology seismic hazards maps for the Oat Mountain and Newhall quadrangles (CDMG, 1998) indicates that the Proposed Project is located within areas of earthquake induced landslide potential (refer to Section 4.6 Geology, Soils, and Seismicity, for more information). The final design of the Proposed Project, including the proposed SCE 66 kV sub-transmission modifications, will include geotechnical considerations to address any potential effects from landslides.

The Proposed Project is not located down stream of a levee or dam or a water body that could fail due to or be affected by a seiche in the event of moderate or stronger ground motion. Therefore the Proposed Project would not impede flood flows from a seiche and so could not expose people or structures to a significant risk from a flood flow due to seiche. The Proposed Project would not have an impact to the risk from a flood flow due to seiche.

Based on the above, the Proposed Project will not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Would the Proposed Project place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Because the Proposed Project does not involve housing, there would be no impacts associated with placing housing within a 100-year floodplain.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

The Proposed Project is not located down stream of a levee or dam or a water body. The proposed SCE Natural Substation and the proposed SoCalGas Central Compressor Station are not located within a FEMA designated flood zone. Only a small portion (~ 2,000 feet) of SCE's existing 66 kV sub-transmission lines south of the Newhall Substation are located within a FEMA designated 100-year Flood Hazard Zone.

The existing SCE MacNeil-Newhall-San Fernando and Chatsworth-MacNeil-Newhall-San Fernando existing source lines are supported on the same towers. The existing towers will be replaced with TSPs and the line will be re-conductored to one span south of the SCE Chatsworth Tap. The existing towers have four legs with connecting cross beams located at the base of each tower. TSPs are a single steel pole. During a flood event, organic debris including tree branches would be more likely to be caught and retained on the existing towers than the proposed TSPs because the existing towers have more surfaces and more surface area perpendicular to the direction of the flood flow than the TSPs. Therefore the existing towers have a greater probability to retain organic debris that could impede or redirect a flood flow than the proposed TSPs. The existing towers have a greater potential to expose people or structures to the risk of flooding from impeding or redirecting flood flows. The TSPs will replace the existing towers and so will reduce the potential to impede or redirect flood flow due to accumulated debris at the base and so will reduce the potential to expose people or structures to a significant risk from flooding. Therefore the impact of replacing the existing towers with TSPs will result in a reduced potential to expose people or structures to a significant risk from flooding and will result in a reduced or no impact of the Proposed Project to exposing people or structures to a significant risk from flooding.

4.8.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** due to construction and operation; therefore no mitigation is measures are recommended. As identified above, the Proponent intends to comply with all applicable regulatory and permit requirements that are designed to minimize impacts to hydrology and water quality. Compliance plans that will be implemented include a construction phase SWPPP, a separate SPCC Plan for the proposed SCE Natural Substation and an update of the existing SWPPP and SPCC Plan developed for the Storage Facility including the Central Compressor station. If any BMPs are required or proposed by either Los Angeles County of the City of Los Angeles for storm water mitigation, the design will include these measures.

4.8.6 References

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4.9 Land Use and Planning

This section describes land use within the Proposed Project area and analyzes potential impacts from project construction and operation. This section also addresses consistency with applicable land use plans and policies adopted by local agencies responsible for land use planning in the Proposed Project area. The jurisdictions crossed by the Proposed Project are shown on Figure 4.9-1.

The Proposed Project components that do not interfere with existing or planned land uses or limit the proposed uses; do not conflict with zoning and applicable land use policy; or could not create a division within an established community were not assessed. For this resource area, these components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth and San Fernando substations[1].

4.9.1 Existing Land Use Setting

The Proposed Project is located mainly on unincorporated Los Angeles County lands, with small portions within Newhall (a community within the city of Santa Clarita), Chatsworth, and Sylmar (communities within the city of Los Angeles). The Proposed Project area includes the southwest end of the Santa Clarita Valley. Land uses within the Proposed Project site consist of residential, agricultural, recreational, open space, and an existing landfill. The overall region is characterized by canyons, hills, and mountain ranges, which provide a scenic open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita 2008). The I-5 Freeway bisects the Proposed Project area with open spaces such as the Santa Susana Mountains and associated park lands dominating the western side of I-5. The proposed modifications to the existing 66 kV sub-transmission system are located in a transitional zone between more developed areas of the city of Santa Clarita and undeveloped areas within Los Angeles County.

Aliso Canyon Natural Gas Storage Field

The Aliso Canyon Natural Gas Storage Field is owned by the Southern California Gas Company for natural gas underground storage. It is Southern California Gas Company's (SoCalGas) largest underground natural gas storage field and one of the largest in the U.S. The storage field was originally discovered in 1938 with the drilling of the Tidewater Association Oil Company (currently Getty Oil Company) and used for oil production in the 1940s. It was subsequently turned into a gas storage site in 1974. The Aliso Canyon Natural Gas Storage Field is located primarily on unincorporated Los Angeles County lands with the eastern-most portion within the City of Los Angeles. Conditional Use Permits (CUPs) for the facility have been approved by both the City[2] and County of Los Angeles[3].

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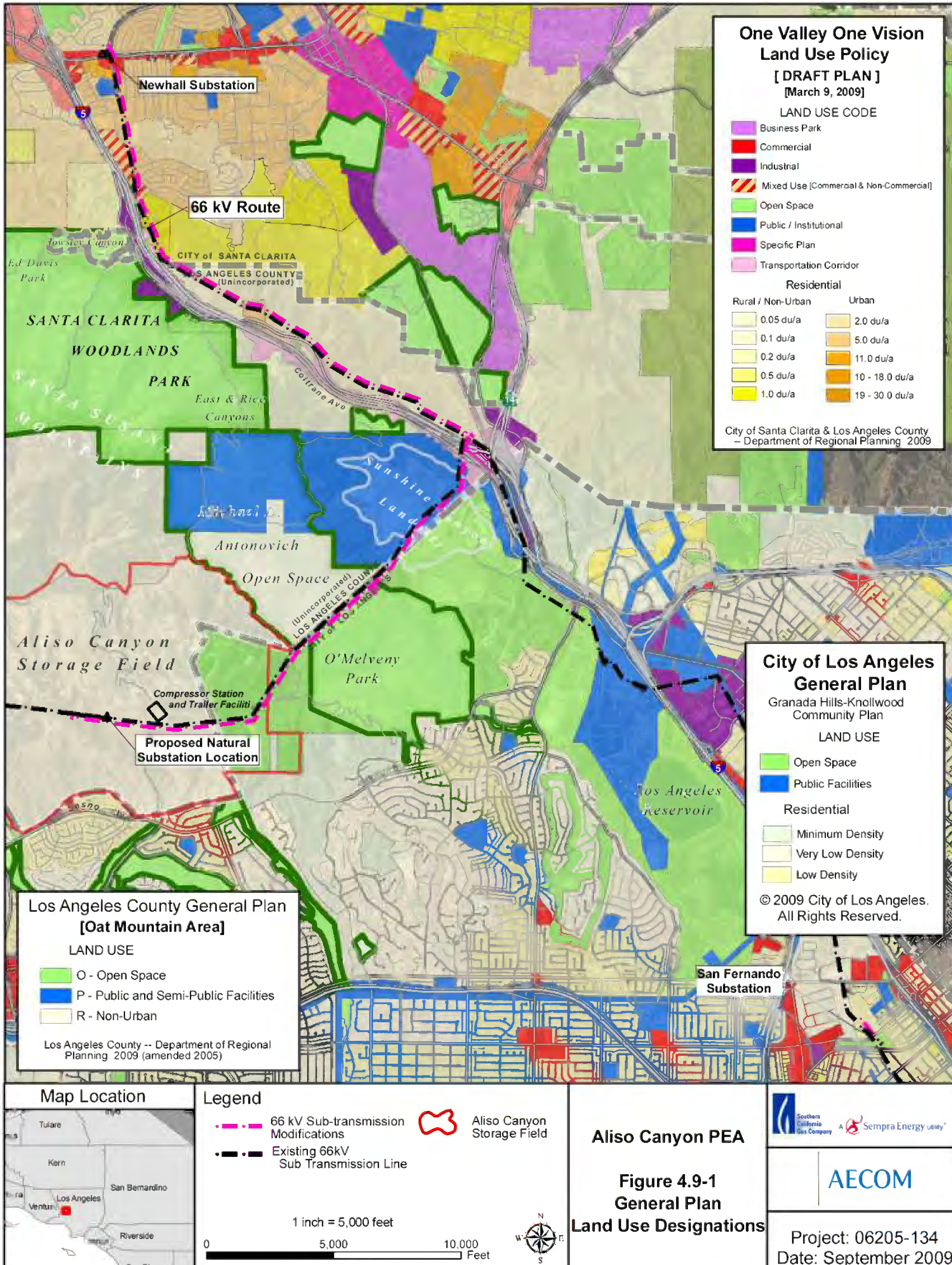
[1] Relay replacement at the SCE Chatsworth Substation located in Ventura County would have no impact on land use; therefore Ventura County is not addressed in this analysis.

[2] City of Los Angeles 1972. City Plan Case No. 24203 Council District No. 1 Sylmar District

[3] County of Los Angeles, 1974. Conditional Use Permit Case No. 473-(5)

Electric Transmission and Distribution System

The Proponent's existing electric service within the vicinity of the Storage Field includes the SCE 16 kV Gavin circuit and an SCE 66 kV sub-transmission system. Both the SCE 16 kV Gavin circuit and the SCE 66 kV sub-transmission system originate at the Newhall substation and traverse to the SoCalGas site using separate routes. The 16 kV Gavin circuit currently provides electrical service to the Storage Facility but would not be able to meet the future energy requirements (50 megawatts) of the proposed Central Compressor Station upon completion of the Proposed Project. The proposed 66 kV sub-transmission system modification includes two lines, the Chatsworth-MacNeil-Newhall-San Fernando 66 kV line and the MacNeil-Newhall-San Fernando 66 kV line. The Proposed Project plans to modify the existing two lines and add an additional 66 kV line segment from the Chatsworth tap point to the proposed SCE Natural Substation to provide electrical service to the proposed SCE Natural Substation. The Proposed Project would not impact the existing SCE 16 kV circuit.



Aliso Canyon PEA

Figure 4.9-1
General Plan
Land Use Designations

4.9.1.1 Land Use at the Project Site

This section provides detailed land use descriptions pertaining to the project's components.

Proposed Central Compressor Station

The site is located at 12801 Tampa Ave., in Northridge, CA (Northern Los Angeles County) about twenty (20) miles north of Los Angeles and is situated within the Aliso Canyon, surrounded by hills on all sides. Major housing developments are located south of the Storage Field property. Areas west, north and east of the compressor injection site are part of the Proponent's property and are mostly undeveloped, with other SoCalGas operations (including soil re-engineering sites, laydown areas, and equipment storage) within the Storage Field property. This site is within the canyon and is not observable from neighboring area roads. The compressor station will be constructed in an area that is previously disturbed. The general location and orientation of the station and ancillary equipment is shown in Figure 3.5-4.

Proposed Trailer Facilities and Guard House Relocation

The existing office trailers utilized by SoCalGas Aliso Field Staff cover approximately 4,500 square feet (across multiple building structures). These facilities are currently located to the south of the existing TDCs, in the proposed Central Compressor Station location. The office trailers will be relocated to a new location, which is represented on Figure 3.1-3. The existing guard house is located at the Storage Facility entrance, within the Storage Field property boundary, located within the city of Los Angeles, and is proposed to be relocated 500 feet north of the existing site to provide for improved traffic flow during construction and operation. The existing guard house will remain in place for security and signage purposes.

Proposed SCE Natural Substation and Sub-transmission Alignment

The proposed location for the SCE Natural Substation site is approximately 1800 feet west of the new Compressor Station site on elevated terrain between two towers of the existing SCE 66 kV line. This area is within Los Angeles County's Oat Mountain and Twin Lakes planning area on lands zoned agricultural. A new 12 kV distribution line (the "PPL") with dedicated service to the proposed Central Compressor Station will be constructed from the proposed SCE Natural Substation to the proposed Central Compressor Station.

Additional Substation Upgrades

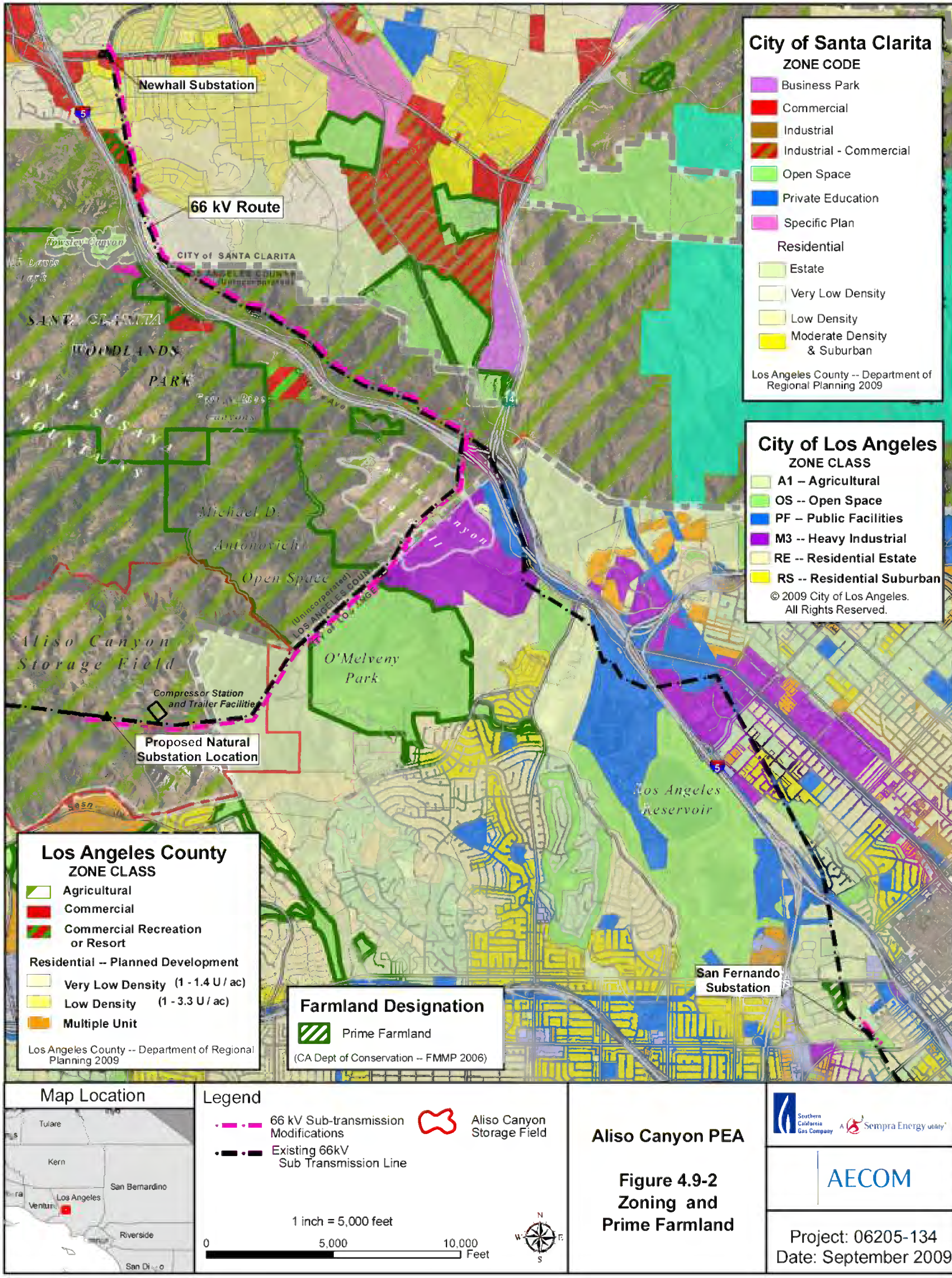
In order to integrate the line arrangement of the proposed SCE Natural Substation into the grid, SCE will be required to perform certain work at existing SCE substations. The Newhall, San Fernando, and Chatsworth Substations will be modified with new protective relay equipment, which involves only minor construction activities and all within the existing substations, with the exception of San Fernando that also includes limited pole replacement. The Newhall Substation is located at the intersection of Wiley Canyon Road and Lyons Avenue, in Newhall, a community in the City of Santa Clarita. The Chatsworth substation is located near the Chatsworth Reservoir, near Valley Circle Road and Plummer Street, in Ventura County. The San Fernando Substation is located near the intersection of San Fernando Mission Boulevard and San Fernando Road, in the Mission Hills Community in the city of Los Angeles.

Additional work will be conducted at the San Fernando Substation that will require some construction activities, including construction of two loop-in sections, removal of up to four existing towers, installation of four new TSPs and less than 1,000 feet of new transmission line. The San Fernando Substation is located within the Mission Hills community of the city of Los Angeles. The immediate area forms a triangle bounded by I-5, I-405, and the Ronald Reagan Freeway (CA 118) and includes the historic San Fernando Mission. The San Fernando Substation is in an area covered by an Agricultural Suburban (A, RA) zoning designation.

SCE 66 kV Sub-transmission System – Route Overview

The existing 66 kV sub-transmission lines originates in the community of Newhall within the city of Santa Clarita and travels south along the I-5 Freeway in incorporated Los Angeles County. The proposed SCE 66 kV sub-transmission modification would originate at SCE's Newhall Substation, at the intersection of Lyons Avenue and Wiley Canyon Road. The alignment of the proposed SCE 66 kV sub-transmission system modification would follow SCE's existing 66 kV sub-transmission corridor which travels south on Wiley Canyon Road and alongside the I-5 Freeway before crossing to the southwest. The northern portion of the existing 66 kV sub-transmission alignment runs through the more urbanized and densely populated portion of the Proposed Project area, predominantly consisting of residential and commercial land uses. Traveling southbound east of I-5, within unincorporated Los Angeles County, the area is primarily undeveloped and consists of steep hillsides and ridgelines. The city of Santa Clarita proposes to annex this area.[4] A review of aerial photography shows a mobile home park consisting of approximately 81 mobile units and a recreation center in this area as well. This mobile home park is situated alongside The Old Road with moderately dense vegetation buffering residences from I-5 (City of Santa Clarita 2009: 2-5).

[4] In March of 2009, the city of Santa Clarita issued a Draft Environmental Impact Report (EIR) for the proposed annexation and pre-zoning of ~ 595 acres currently located along the eastern side of I-5 in unincorporated Los Angeles County (City of Santa Clarita, 2009).


Newhall Substation
66 kV Route
CITY of SANTA CLARITA
LOS ANGELES COUNTY (Unincorporated)
Towsley Canyon
SANTA CLARITA
WOODLANDS
PARK
Michael D.
Antonovich
Open Space
Aliso Canyon
Storage Field
Compressor Station
and Trailer Facilities
Proposed Natural
Substation Location
O'Melveny
Park
Los Angeles
Reservoir
San Fernando
Substation
City of Santa Clarita
ZONE CODE
Business Park
Commercial
Industrial
Industrial - Commercial
Open Space
Private Education
Specific Plan
Residential
Estate
Very Low Density
Low Density
Moderate Density
& Suburban
Los Angeles County -- Department of
Regional Planning 2009
City of Los Angeles
ZONE CLASS
A1 -- Agricultural
OS -- Open Space
PF -- Public Facilities
M3 -- Heavy Industrial
RE -- Residential Estate
RS -- Residential Suburban
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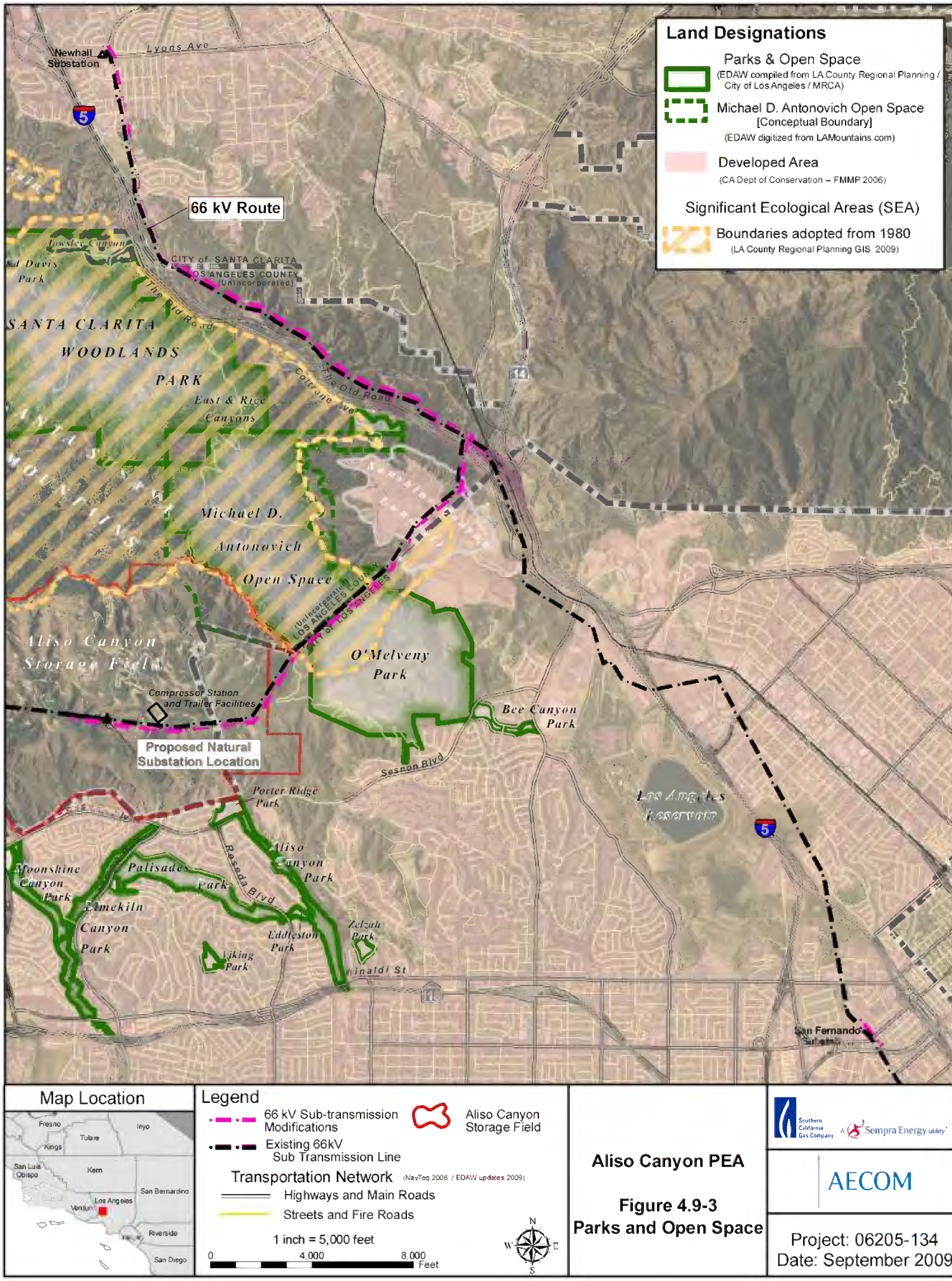
Los Angeles County
ZONE CLASS
Agricultural
Commercial
Commercial Recreation
or Resort
Residential -- Planned Development
Very Low Density (1 - 1.4 U / ac)
Low Density (1 - 3.3 U / ac)
Multiple Unit
Los Angeles County -- Department of Regional
Planning 2009
Farmland Designation
Prime Farmland
(CA Dept of Conservation -- FMMP 2006)
Map Location
Tulare
Kern
San Bernardino
Los Angeles
Riverside
Legend
66 kV Sub-transmission
Modifications
Existing 66kV
Sub Transmission Line
Aliso Canyon
Storage Field
1 inch = 5,000 feet
0
5,000
10,000
Feet
N
S
Aliso Canyon PEA
Figure 4.9-2
Zoning and
Prime Farmland
Southern California Gas Company
A Sempra Energy utility
AECOM
Project: 06205-134
Date: September 2009



Aliso Canyon PEA

Figure 4.9-3
Parks and Open Space

Project: 06205-134
Date: September 2009

Further south, at the I-5 crossing, a portion of the 66 kV sub-transmission line (~ 4,200 feet) traverses the Sunshine Canyon Landfill, located in Sylmar, California. The Sunshine Canyon Landfill is planning an expansion to accommodate ongoing landfill operations in the area, which will require relocation of the existing 66 kV sub-transmission alignment. The proposed alignment relocation runs along the perimeter of the disturbed area of the landfill property boundary. Activities associated with the relocation may be analyzed in a separate Permit to Construct application SCE will be submitting for the landfill relocation to the CPUC and are not part of the Proposed Project. The southern-half of the landfill located on the City side of the Proposed Project area is designated open space, while the County side is designated public facilities[5] (City of Los Angeles, 2007).

The majority of the 66 kV sub-transmission route on the west side of I-5 is within unincorporated Los Angeles County, in an area referred to as Oat Mountain by the General Plan (Los Angeles County, 2005). South of the landfill and toward the proposed SCE Natural Substation, the 66 kV sub-transmission alignment parallels the boundary line of the city and county of Los Angeles. This border line also coincides with the boundary that separates Michael D. Antonovich Open Space from O'Melveny Park (refer to Figure 4.9-3). These open space lands are located within a County-designated SEA, known as the Santa Susana Mountains/Simi Hills SEA (County of Los Angeles, 2008: 135). SEAs are biologically significant areas where the County deems it important to facilitate a balance between new development and resource conservation. The Santa Susana Mountains/Simi Hills SEA is important for maintaining gene flow and wildlife movement between the Santa Monica and San Gabriel Mountains. The Proposed Project is not expected to hinder wildlife movement as the Proposed Project's components do not affect any freeway culverts or any other corridors designed for wildlife movement, project related fencing would occur within the Storage Field property, which is already fenced at the perimeter. Continuation of the Storage Field use with large undeveloped areas within the Storage Field boundaries, as an alternative to more intensive development, would help protect the biological values of this area.

A small portion of the 66 kV sub-transmission alignment (immediately before the proposed SCE Natural Substation) is within the city of Los Angeles' Granada Hills-Knollwood Community Plan and includes the eastern extent of the Storage Field property. This area is designated open space; however public access within the Storage Field is prohibited (City of Los Angeles, 2003).

4.9.1.2 Regulatory Setting

This section describes the relevant goals and policies relating to land use for the jurisdictional agencies.

Federal Plans, Policies, Regulation and Laws

There are no Federal lands in the Proposed Project area.

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[5] Under Case No. ZA 17804 (Zone Variance) approved April 16, 1996, the site was granted a ZV to permit the continued operation of the dump facilities based upon certain terms and conditions. Condition 14 of the ZV required that upon the completion of the site's operation as a dump facility, the owner's shall advise the City and County Recreation and Parks Department that the property is available for recreational purposes (City of Los Angeles, 2007).

State Plans, Policies, Regulations and Laws

California Public Utilities Commission

Local plans and ordinances are evaluated in this PEA to assist the CPUC in determining whether the Proposed Project would be potentially consistent with locally adopted land use plans, goals, and policies.

Article XII, section 8, of the California Constitution states, "[a] city, county, or other public body may not regulate matters over which the Legislature grants regulatory power to the [Public Utilities] Commission." The Public Utilities Code authorizes the CPUC to "do all things, whether specifically designated in this act or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction." Cal. Pub. Util. Code §701. Other Public Utilities Code provisions generally authorize the CPUC to modify facilities, to secure adequate service or facilities, and to operate so as to promote health and safety. Thus, under the California Constitution and Public Utilities Code, the CPUC has broad authority to preempt local regulation of public utilities, particularly when a local government attempts to unduly burden a public utility use or operations. Cities and Counties cannot impose regulations that place significant burdens on utility operations. In addition, in the context of electric utility projects, CPUC G.O. 131-D, Section XIV.B states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities in the State of California, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluations are anticipated for the Proposed Project or alternatives. SoCalGas and SCE would be required to obtain all applicable ministerial building and encroachment permits from local jurisdictions for the Proposed Project.

Regional and Local Plans, Policies, Regulations, and Ordinances

The Proposed Project would cross lands within the county of Los Angeles, city of Santa Clarita, and the city of Los Angeles. The county and city of Santa Clarita are engaged in a joint venture to develop a master planning document called the Santa Clarita Valleywide General Plan, One Valley, One Vision (OVOV). It is intended to result in a common General Plan for the entire Valley that will be administered by the City and County for lands within their respective jurisdictions. The General Plan was revised in 2008 and is currently pending adoption from the City and County (City of Santa Clarita OVOV, 2009). It is important to note that the City of Santa Clarita General Plan (1991) and Los Angeles County General Plan (1980) are still in effect, however the updated OVOV version is included in this discussion for reference, as it represents the most recent land use planning effort in the project area. SoCalGas provided the Los Angeles County Regional Planning Department with proposed policy and objective language in concert with the OVOV process in 2008. This language affected the following Los Angeles County General Plan elements; Land Use; Public Services and Facilities; and Mineral Resources. Much of this language has been incorporated into the General Plan draft EIR. If adopted, the language will identify the natural gas storage land use and protect the facility from encroachment of incompatible uses.

County of Los Angeles General Plan Land Use Element

The original Los Angeles County General Plan was adopted in 1980 and has governed land use in unincorporated Los Angeles County for nearly 30 years (Los Angeles County 2008). The General Plan was revised in 2008 and is currently pending adoption. The following policies from the General Plan are those current to January 1993 and would be applicable to portions of the Proposed Project route that traverse unincorporated Los Angeles County areas (Los Angeles County 1993):

Policy LU-9: Protect major landfill and solid waste disposal sites from encroachment of incompatible uses.

Policy LU-14: Assure that new development is compatible with the natural and manmade environment by implementing appropriate locational controls and high quality design standards.

Policy LU-17: Establish and implement regulatory controls that ensure compatibility of development adjacent to or within major public open space and recreation areas including National Forests, the National Recreation Area, and State and regional parks.

Los Angeles County General Plan, Conservation and Open Space Element

To help protect sensitive biological resources within unincorporated areas of the Santa Clarita Valley, the county of Los Angeles has designated SEAs. These are ecologically fragile or important land and water areas that are valuable as plant or animal communities. Within the Santa Clarita Valley, the County has designated five SEAs. SEAs are not preserves and limited development is allowed within these areas. Land intensive development in SEAs requires approval of a Conditional Use Permit (CUP) and an additional level of review by the SEA Technical Advisory Committee (Los Angeles County 2008). However, as discussed above, the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities in the State of California; therefore SCE would not be subject to SEATAC review or CUP approval.

As proposed, the Proposed Project would traverse the Santa Susana Mountains/Simi Hills SEA within unincorporated Los Angeles County (City Santa Clarita 2008). The boundaries of this SEA are currently being modified as part of the General Plan update and may ultimately include a portion of the existing 66 kV sub-transmission alignment on the eastern side of I-5 (as shown on Figure 4.9-3). This expansion of the existing SEA boundary is within the proposed, but not yet adopted, modification of the SEA (City of Santa Clarita, 2009).

Santa Clarita Valley Area Plan

The Santa Clarita Valley Area Plan, updated in 1990, is designed to guide management decisions within the unincorporated Los Angeles County areas of the Santa Clarita Valley, and is a component of the Los Angeles County General Plan. The Plan includes the following land use policies applicable to the Proposed Project:

Environmental Resources Management Element, Policy 2.1: Protect identified resources in Significant Ecological Areas by appropriate measures including preservation, mitigation, and enhancement.

Environmental Resources Management Element, Policy 2.3: Require site level analysis of proposed development projects within significant Ecological Areas to insure that adverse impacts upon resources within identified SEAs are minimized.

Environmental Resources Management Element, Policy 6.4: Encourage the use of public utility ROWs for trails when practical and compatible with the utility present, as shown on the Trails Plan.

Land Use Element--Environmental Hazards and Constraints, Policy 4.2: Designate areas of excessive slope (exceeding 25 percent) as “Hillside Management Areas,” with performance standards applied to development to minimize potential hazards such as landslides, erosion, and excessive runoff and flooding.

Community Design Element, Policy 3.2: Require that all new power distribution networks, communication lines, and other service network facilities be located underground wherever practical. Transmission lines should be located underground where feasible.

City of Santa Clarita General Plan

The General Plan, adopted on June 26, 1991, provides the framework for development in Santa Clarita. The following elements and policies are applicable to the portions of the Proposed Project route that traverses the city of Santa Clarita:

Land Use Element, Policy 2.8: Explore the utility ROWs for tree farms, nurseries, row crops, trails, and greenbelts.

Community Design Element, Policy 11.1: Encourage placement of transmission power lines and other mechanical equipment underground, where feasible, to maximize safety and minimize visual distraction.

Community Design Element, Policy 11.3: Require that all new on-site connections and utilities are installed underground and prepare and implement an underground program for existing development.

Community Design Element, Policy 11.5: Develop coordinated planning programs to ensure the efficient placement and consolidation of utility facilities within new development.

Community Design Element, Policy 11.8: Examine the use of the land under high power transmission lines for landscaping, tree farms, additional safe recreation areas, and other appropriate feasible uses.

Community Design Element, Policy 11.9: Encourage single pole transmission towers and cellular poles, and avoid reinforced structural support bases.

Parks and Recreation Element, Policy 7.4: Encourage multiple use and dedication of existing public easements for trail development including, but not limited to, utility lines and access easements, where appropriate.

Parks and Recreation Element, Policy 10.3: Encourage and promote cooperation between agencies to facilitate the multiple use of public ROWs consistent with the general plan and public safety.

Ridgelines and Hillsides

Both the city of Santa Clarita and the county of Los Angeles have recognized the hillside areas of the Valley to be important resources and have adopted hillside management regulations to restrict development on steeper slopes. The current hillside regulations applicable to the Proposed Project are presented below:

- **Ridgeline Preservation and Hillside Development Ordinance (Chapter 17.80)**

The provisions of the Ridgeline Preservation and Hillside Development Ordinance apply to parcels of land having average slope of 10 percent or more or are located in the area of a significant ridgeline as classified by the Significant Ridgelines Map for the City of Santa Clarita (City of Santa Clarita, 2002).

- **City of Santa Clarita Ridgeline Preservation (RP) Overlay Zone**

  As defined by Section 17.80.040 of the City of Santa Clarita Unified Development Code, primary and secondary ridgelines are considered significant ridgelines and should be preserved to the maximum extent feasible.

- **Los Angeles County Municipal Code, Ordinance 22.56.215**

  In order to protect resources, development in hillside management areas within the County is regulated by Ordinance 22.56.215 of the Los Angeles County Municipal Code. Hillside management areas are defined by the General Plan as land having natural slopes in excess of 25 percent. In addition to the ordinance regulating development in hillside management areas, the County also has Hillside Design Guidelines (1979) that are intended to provide guidance to those preparing plans for hillside development. These Guidelines apply to residential, commercial, and industrial projects within Hillside Management Areas (EIP Associates, 2004).

Substantial slopes and ridgelines exist on the Proposed Project site and in the Proposed Project vicinity. The Proposed Project area contains City-designated Significant Ridgelines and is almost entirely classified as a County Hillside Management Zone, as shown on Figure 4.1-1 in Section 4.1, due to the fact that a substantial portion of the site contains slopes of greater than 25 percent. A substantial portion of the Proposed Project site would be subject to a ridgeline preservation (RP) overlay zone under proposed City zoning and the County's review criteria for HM areas under existing zoning. Refer to Section 4.1 Aesthetics, for a discussion on the visual impacts of the transmission poles on hillsides and ridgelines.

City of Los Angeles General Plan-Land Use Element

The City of Los Angeles General Plan was most recently re-adopted on August 8, 2001 (City of Los Angeles, 2001). The following policies would be applicable to portions of the Proposed Project route that traverse the city of Los Angeles lands:

Policy 3.3.1 Accommodate projected population and employment growth in accordance with the Long-Range Land Use Diagram and forecasts in Table 2-2 Chapter 2: Growth and Capacity, using these in the formulation of the community plans and as the basis for the planning for implementation of infrastructure improvements and public services.

Policy 3.4.2 Encourage new industrial development in areas traditionally planned for such purposes generally in accordance with the Framework Long-Range Land Use Diagram and as specifically shown on the community plans.

4.9.2 Significance Criteria

The significance criteria for assessing the impacts to land use and planning come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Physically divide an established community;
- Conflict with an applicable environmental plan, policy, or regulation of an agency with jurisdiction over the project (including, not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.9.3 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with land use and planning.

4.9.4 Impact Analysis

The potential impacts to land use and planning from construction and operation of the Proposed Project were evaluated using the stated CEQA significance criteria and are presented in this section. For the purpose of presenting potential land use and planning impacts, construction and operation are discussed together for each CEQA criteria.

Would the Proposed Project physically divide an established community?

Construction and operation of the Proposed Project along the same corridor as existing roadways and SCE ROW is not likely to further divide or affect the unity of an established community. The existing ROW would not require substantial expansion, and maintenance would occur primarily within the established ROW. As shown in the previous figures, existing land uses along the route of the Proposed Project consists primarily of existing electric transmission and natural gas facilities, open space, low-density residential, industrial, commercial, and rural land.

The proposed 66 kV sub-transmission modification would involve pole replacement along an existing transmission right-of-way and would not create a physical barrier that could divide an established community. The proposed Central Compressor Station, proposed SCE Natural Substation, proposed SoCalGas PPL, and proposed office trailer and guard house relocation are located entirely within private land owned by SoCalGas. In most cases, construction activities would take place within previously disturbed areas due to prior development of the facility. These proposed modifications would not interfere physically with surrounding developments or land use because they occur within the existing boundary and in some cases an existing fence line within the Storage Field property. As a result, the Proposed Project and its components would not physically divide a community.

Would the Proposed Project conflict with an applicable environmental plan, policy, or regulation of an agency with jurisdiction over the project (including, not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

As noted above, local jurisdictions are preempted from unreasonably burdening public utility uses and operations. Thus, the local regulations identified above are not applicable to the extent they would place undue burdens on public utility use or operations. Nonetheless, as discussed below, the Proposed Project is consistent with local land use plans, policies and regulations.

The Proposed Project would involve installing new TSPs along the existing 66 kV sub-transmission route, within existing ROW; however, there are no new land use impacts or conflicts associated with these activities. The alignment of the proposed SoCalGas PPL is proposed to be above grade and would utilize an existing ROW in areas designated open space, industrial, non-urban, commercial, and low density residential, and would be compatible with existing uses. The Proposed Project would involve pole replacement along an existing 66 kV sub-transmission alignment, thus avoiding the need to create a new utility corridor in scenic open space or hillside management areas, which is consistent with Los Angeles County and city of Santa Clarita general plan policies. Furthermore, transmission structures are typically a permitted use in areas zoned Agriculture, which applies to the majority of the Proposed Project area. Construction of the proposed SCE Natural Substation and associated segment of the proposed PPL, and the proposed Central Compressor Station would take place within the Storage Field property, or within existing ROW. As mentioned earlier, SoCalGas prohibits public access to the property and plans for its retention as undeveloped land for ~ 30 years to 50 years (City of Los Angeles, 2007).

Both the city of Los Angeles and the county of Los Angeles have approved CUPs for the facility. The Proposed Project is consistent with the uses permitted under those approvals. The Proponent plans to submit to the County of Los Angeles an updated Exhibit A showing the location of new facilities for inclusion in the existing CUP permit file.

Would the Proposed Project conflict with any applicable habitat conservation plan or natural community conservation plan?

As stated in Section 4.4 Biological Resources, no such plans have been adopted in the Proposed Project area; therefore, there would be no impacts.

General Plan policy mandates the conservation of SEAs in as viable and natural a condition as possible without treating them as preserves and prohibiting development. The portion of the 66 kV alignment that parallels the boundary line of the city and county of Los Angeles (also coincides with the boundary that separates MDA Open Space and O'Melveny Park) is located within the Santa Susana Mountains/Simi Hills SEA. According to the proposed update to the Los Angeles County General Plan (2008), this SEA is "largely undisturbed by the urbanization that has occurred both to the south (San Fernando Valley) and to the north (Santa Clarita). These wilderness areas are important for maintaining gene flow and wildlife movement between the Santa Monica and San Gabriel Mountains, which are now largely isolated from one another by urban development."

The Proposed Project is not expected to disrupt the SEA's function as a wildlife corridor nor create a geographical barrier for gene flow, as wildlife could move freely underneath the existing 66 kV sub-transmission system. In addition, construction activities at the Storage Facility will primarily occur in previously disturbed areas. The Proposed Project does not affect wildlife culverts under the freeway and any proposed fencing occurs in areas that have previously been fenced. Grading activities may temporarily result in the conversion of natural habitat for pole placement; however these activities are not expected to impede wildlife movement. Based on personal communication with Los Angeles County, issues of concern typically relate to impeded culverts or wildlife corridors, which the project is not expected to disrupt (Lowry, pers comm., 2009). For more information, refer to Section 4.4 Biological Resources.

4.9.5 Mitigation Measures

Construction and operation of the Proposed Project would result in impacts that were determined to be **less than significant** therefore no mitigation is required or proposed.

4.9.6 References

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4.9 Land Use and Planning

This section describes land use within the Proposed Project area and analyzes potential impacts from project construction and operation. This section also addresses consistency with applicable land use plans and policies adopted by local agencies responsible for land use planning in the Proposed Project area. The jurisdictions crossed by the Proposed Project are shown on Figure 4.9-1.

The Proposed Project components that do not interfere with existing or planned land uses or limit the proposed uses; do not conflict with zoning and applicable land use policy; or could not create a division within an established community were not assessed. For this resource area, these components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth and San Fernando substations[1].

4.9.1 Existing Land Use Setting

The Proposed Project is located mainly on unincorporated Los Angeles County lands, with small portions within Newhall (a community within the city of Santa Clarita), Chatsworth, and Sylmar (communities within the city of Los Angeles). The Proposed Project area includes the southwest end of the Santa Clarita Valley. Land uses within the Proposed Project site consist of residential, agricultural, recreational, open space, and an existing landfill. The overall region is characterized by canyons, hills, and mountain ranges, which provide a scenic open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita 2008). The I-5 Freeway bisects the Proposed Project area with open spaces such as the Santa Susana Mountains and associated park lands dominating the western side of I-5. The proposed modifications to the existing 66 kV sub-transmission system are located in a transitional zone between more developed areas of the city of Santa Clarita and undeveloped areas within Los Angeles County.

Aliso Canyon Natural Gas Storage Field

The Aliso Canyon Natural Gas Storage Field is owned by the Southern California Gas Company for natural gas underground storage. It is Southern California Gas Company's (SoCalGas) largest underground natural gas storage field and one of the largest in the U.S. The storage field was originally discovered in 1938 with the drilling of the Tidewater Association Oil Company (currently Getty Oil Company) and used for oil production in the 1940s. It was subsequently turned into a gas storage site in 1974. The Aliso Canyon Natural Gas Storage Field is located primarily on unincorporated Los Angeles County lands with the eastern-most portion within the City of Los Angeles. Conditional Use Permits (CUPs) for the facility have been approved by both the City[2] and County of Los Angeles[3].

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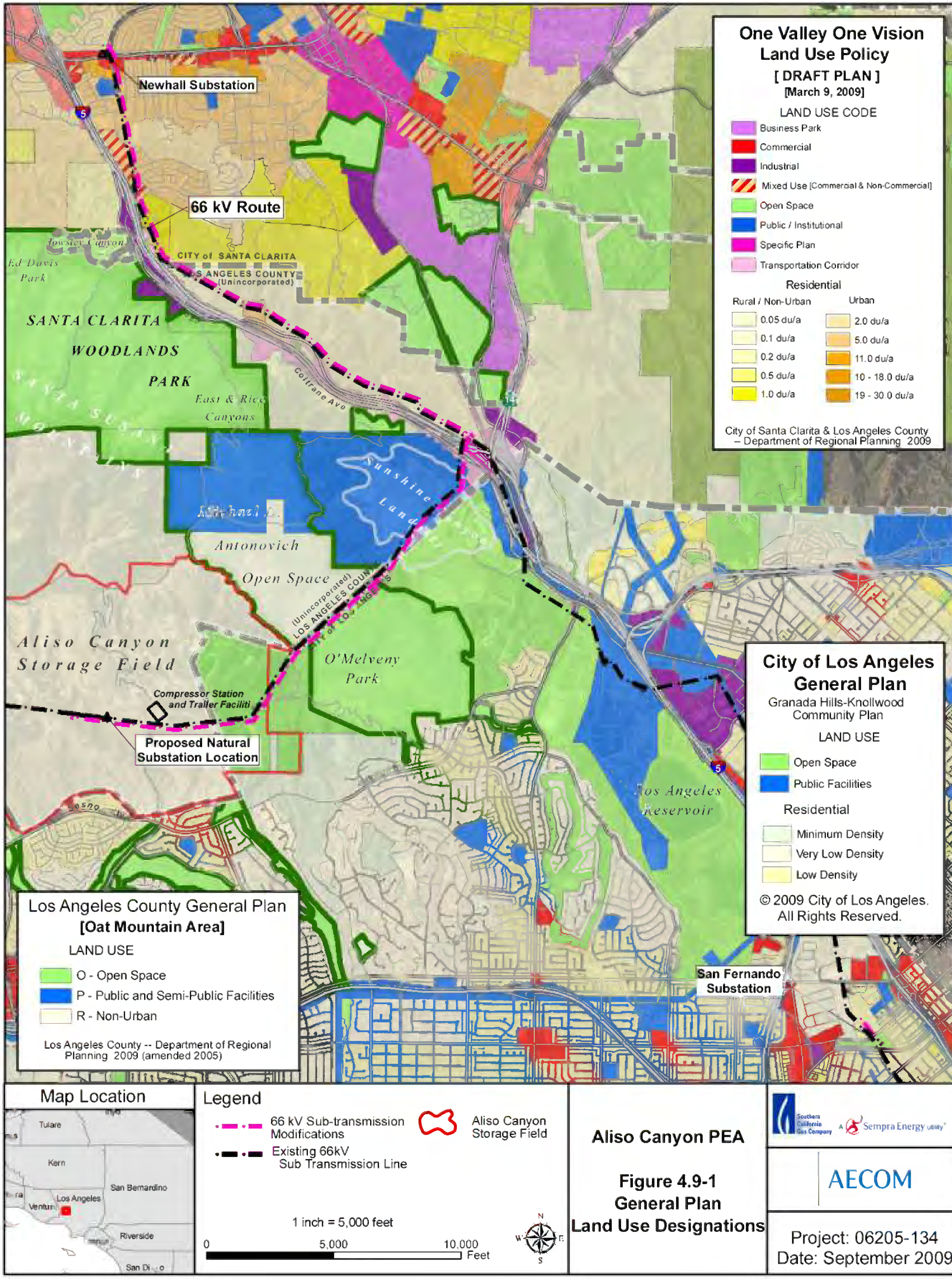
[1] Relay replacement at the SCE Chatsworth Substation located in Ventura County would have no impact on land use; therefore Ventura County is not addressed in this analysis.

[2] City of Los Angeles 1972. City Plan Case No. 24203 Council District No. 1 Sylmar District

[3] County of Los Angeles, 1974. Conditional Use Permit Case No. 473-(5)

Electric Transmission and Distribution System

The Proponent's existing electric service within the vicinity of the Storage Field includes the SCE 16 kV Gavin circuit and an SCE 66 kV sub-transmission system. Both the SCE 16 kV Gavin circuit and the SCE 66 kV sub-transmission system originate at the Newhall substation and traverse to the SoCalGas site using separate routes. The 16 kV Gavin circuit currently provides electrical service to the Storage Facility but would not be able to meet the future energy requirements (50 megawatts) of the proposed Central Compressor Station upon completion of the Proposed Project. The proposed 66 kV sub-transmission system modification includes two lines, the Chatsworth-MacNeil-Newhall-San Fernando 66 kV line and the MacNeil-Newhall-San Fernando 66 kV line. The Proposed Project plans to modify the existing two lines and add an additional 66 kV line segment from the Chatsworth tap point to the proposed SCE Natural Substation to provide electrical service to the proposed SCE Natural Substation. The Proposed Project would not impact the existing SCE 16 kV circuit.



Aliso Canyon PEA

Figure 4.9-1
General Plan
Land Use Designations

Project: 06205-134
Date: September 2009

4.9.1.1 Land Use at the Project Site

This section provides detailed land use descriptions pertaining to the project's components.

Proposed Central Compressor Station

The site is located at 12801 Tampa Ave., in Northridge, CA (Northern Los Angeles County) about twenty (20) miles north of Los Angeles and is situated within the Aliso Canyon, surrounded by hills on all sides. Major housing developments are located south of the Storage Field property. Areas west, north and east of the compressor injection site are part of the Proponent's property and are mostly undeveloped, with other SoCalGas operations (including soil re-engineering sites, laydown areas, and equipment storage) within the Storage Field property. This site is within the canyon and is not observable from neighboring area roads. The compressor station will be constructed in an area that is previously disturbed. The general location and orientation of the station and ancillary equipment is shown in Figure 3.5-4.

Proposed Trailer Facilities and Guard House Relocation

The existing office trailers utilized by SoCalGas Aliso Field Staff cover approximately 4,500 square feet (across multiple building structures). These facilities are currently located to the south of the existing TDCs, in the proposed Central Compressor Station location. The office trailers will be relocated to a new location, which is represented on Figure 3.1-3. The existing guard house is located at the Storage Facility entrance, within the Storage Field property boundary, located within the city of Los Angeles, and is proposed to be relocated 500 feet north of the existing site to provide for improved traffic flow during construction and operation. The existing guard house will remain in place for security and signage purposes.

Proposed SCE Natural Substation and Sub-transmission Alignment

The proposed location for the SCE Natural Substation site is approximately 1800 feet west of the new Compressor Station site on elevated terrain between two towers of the existing SCE 66 kV line. This area is within Los Angeles County's Oat Mountain and Twin Lakes planning area on lands zoned agricultural. A new 12 kV distribution line (the "PPL") with dedicated service to the proposed Central Compressor Station will be constructed from the proposed SCE Natural Substation to the proposed Central Compressor Station.

Additional Substation Upgrades

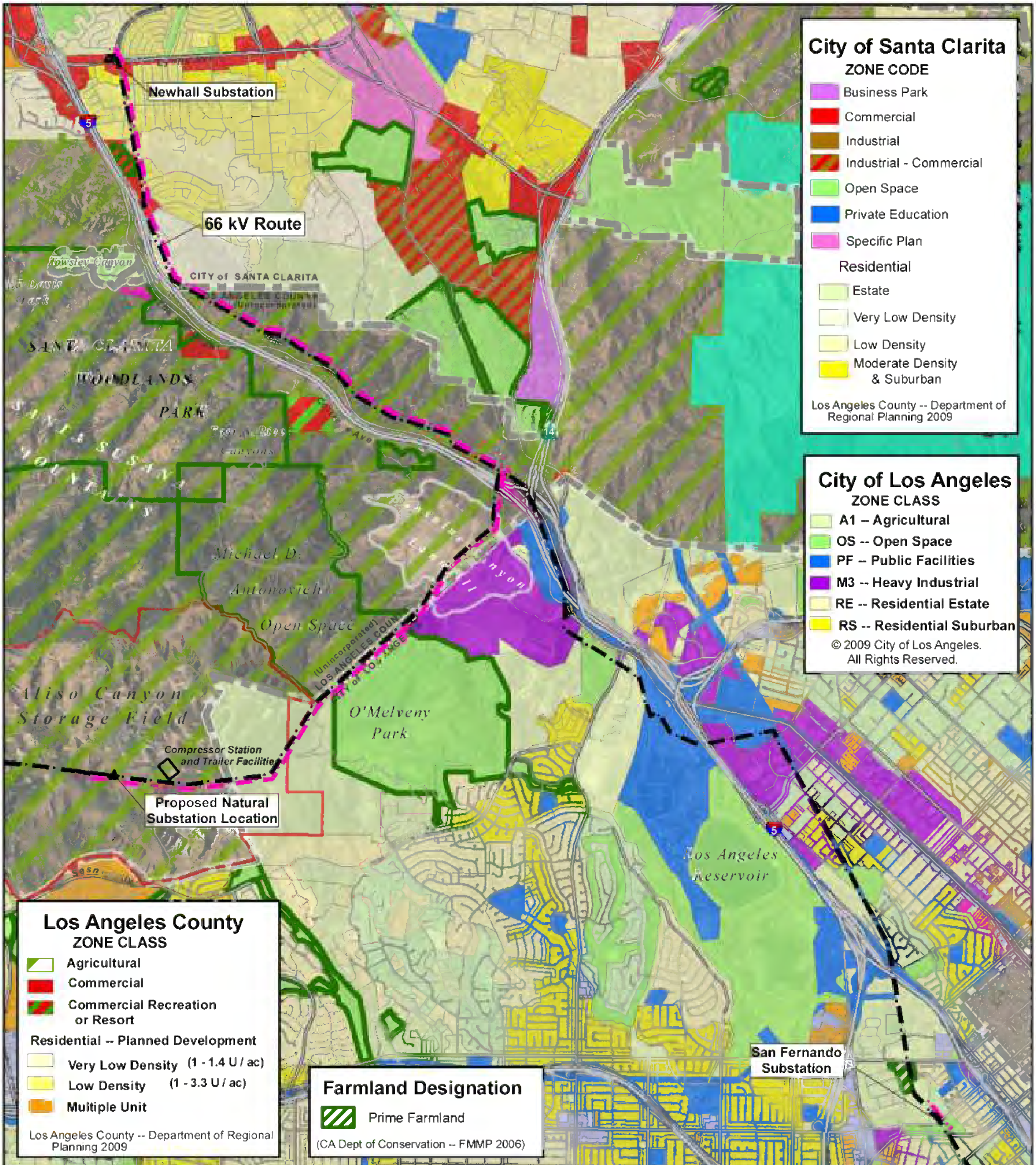
In order to integrate the line arrangement of the proposed SCE Natural Substation into the grid, SCE will be required to perform certain work at existing SCE substations. The Newhall, San Fernando, and Chatsworth Substations will be modified with new protective relay equipment, which involves only minor construction activities and all within the existing substations, with the exception of San Fernando that also includes limited pole replacement. The Newhall Substation is located at the intersection of Wiley Canyon Road and Lyons Avenue, in Newhall, a community in the City of Santa Clarita. The Chatsworth substation is located near the Chatsworth Reservoir, near Valley Circle Road and Plummer Street, in Ventura County. The San Fernando Substation is located near the intersection of San Fernando Mission Boulevard and San Fernando Road, in the Mission Hills Community in the city of Los Angeles.

Additional work will be conducted at the San Fernando Substation that will require some construction activities, including construction of two loop-in sections, removal of up to four existing towers, installation of four new TSPs and less than 1,000 feet of new transmission line. The San Fernando Substation is located within the Mission Hills community of the city of Los Angeles. The immediate area forms a triangle bounded by I-5, I-405, and the Ronald Reagan Freeway (CA 118) and includes the historic San Fernando Mission. The San Fernando Substation is in an area covered by an Agricultural Suburban (A, RA) zoning designation.

SCE 66 kV Sub-transmission System – Route Overview

The existing 66 kV sub-transmission lines originates in the community of Newhall within the city of Santa Clarita and travels south along the I-5 Freeway in incorporated Los Angeles County. The proposed SCE 66 kV sub-transmission modification would originate at SCE's Newhall Substation, at the intersection of Lyons Avenue and Wiley Canyon Road. The alignment of the proposed SCE 66 kV sub-transmission system modification would follow SCE's existing 66 kV sub-transmission corridor which travels south on Wiley Canyon Road and alongside the I-5 Freeway before crossing to the southwest. The northern portion of the existing 66 kV sub-transmission alignment runs through the more urbanized and densely populated portion of the Proposed Project area, predominantly consisting of residential and commercial land uses. Traveling southbound east of I-5, within unincorporated Los Angeles County, the area is primarily undeveloped and consists of steep hillsides and ridgelines. The city of Santa Clarita proposes to annex this area.[4] A review of aerial photography shows a mobile home park consisting of approximately 81 mobile units and a recreation center in this area as well. This mobile home park is situated alongside The Old Road with moderately dense vegetation buffering residences from I-5 (City of Santa Clarita 2009: 2-5).

[4] In March of 2009, the city of Santa Clarita issued a Draft Environmental Impact Report (EIR) for the proposed annexation and pre-zoning of ~ 595 acres currently located along the eastern side of I-5 in unincorporated Los Angeles County (City of Santa Clarita, 2009).



Map Location	Legend		
Tulare, Kern, San Bernardino, Los Angeles, Ventura, Riverside, San Diego	66 kV Sub-transmission Modifications; Existing 66kV Sub Transmission Line; Aliso Canyon Storage Field		

1 inch = 5,000 feet

0 5,000 10,000 Feet

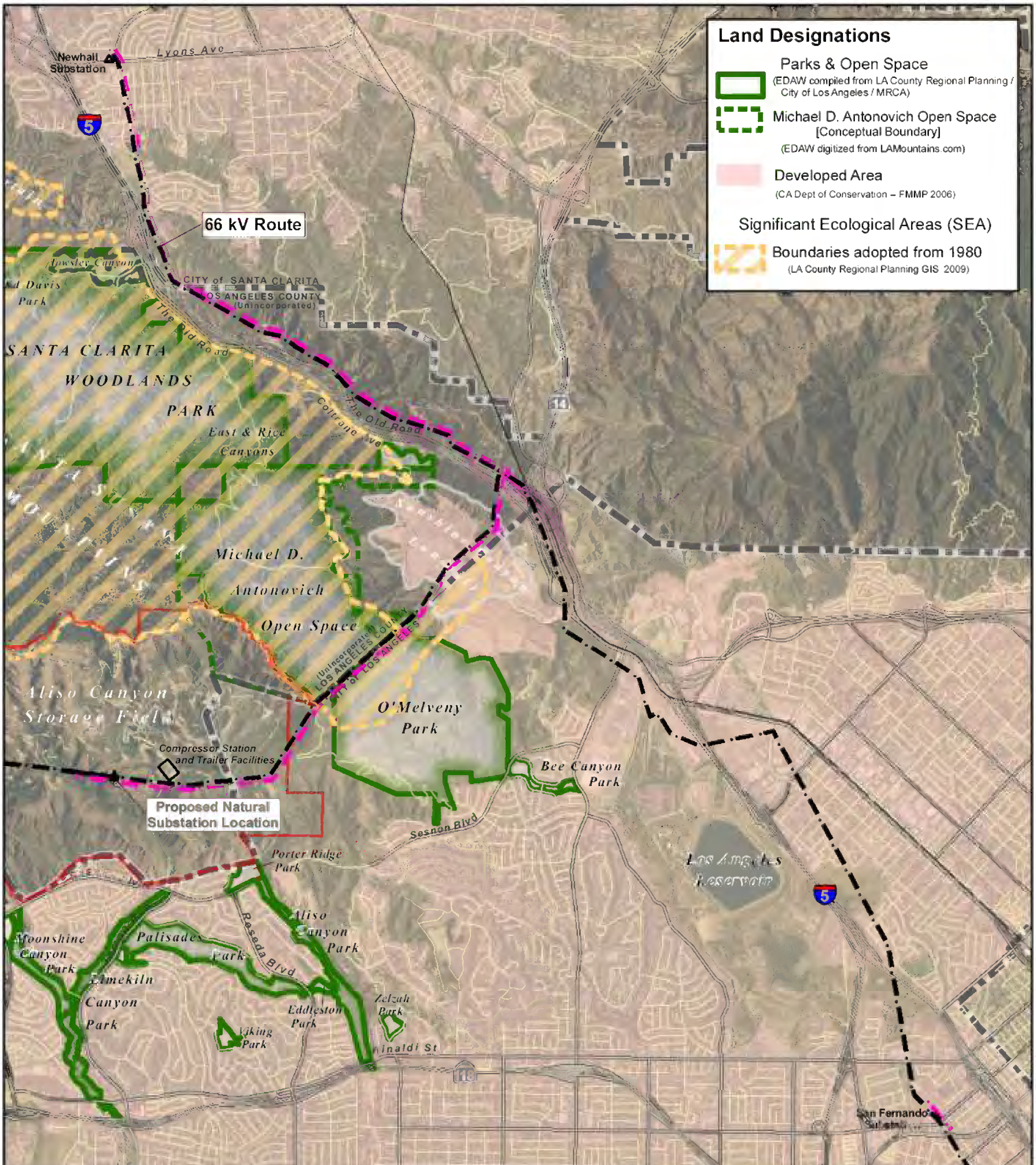
Aliso Canyon PEA

Figure 4.9-2 Zoning and Prime Farmland

Southern California Gas Company — A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009



Map Location

Legend

66 kV Sub-transmission Modifications

Aliso Canyon Storage Field

Existing 66kV Sub Transmission Line

Transportation Network (NavTeq 2006 / EDAW updates 2009)

Highways and Main Roads

Streets and Fire Roads

1 inch = 5,000 feet

0 4,000 8,000 Feet

Aliso Canyon PEA

Figure 4.9-3
Parks and Open Space

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

Further south, at the I-5 crossing, a portion of the 66 kV sub-transmission line (~ 4,200 feet) traverses the Sunshine Canyon Landfill, located in Sylmar, California. The Sunshine Canyon Landfill is planning an expansion to accommodate ongoing landfill operations in the area, which will require relocation of the existing 66 kV sub-transmission alignment. The proposed alignment relocation runs along the perimeter of the disturbed area of the landfill property boundary. Activities associated with the relocation may be analyzed in a separate Permit to Construct application SCE will be submitting for the landfill relocation to the CPUC and are not part of the Proposed Project. The southern-half of the landfill located on the City side of the Proposed Project area is designated open space, while the County side is designated public facilities[5] (City of Los Angeles, 2007).

The majority of the 66 kV sub-transmission route on the west side of I-5 is within unincorporated Los Angeles County, in an area referred to as Oat Mountain by the General Plan (Los Angeles County, 2005). South of the landfill and toward the proposed SCE Natural Substation, the 66 kV sub-transmission alignment parallels the boundary line of the city and county of Los Angeles. This border line also coincides with the boundary that separates Michael D. Antonovich Open Space from O'Melveny Park (refer to Figure 4.9-3). These open space lands are located within a County-designated SEA, known as the Santa Susana Mountains/Simi Hills SEA (County of Los Angeles, 2008: 135). SEAs are biologically significant areas where the County deems it important to facilitate a balance between new development and resource conservation. The Santa Susana Mountains/Simi Hills SEA is important for maintaining gene flow and wildlife movement between the Santa Monica and San Gabriel Mountains. The Proposed Project is not expected to hinder wildlife movement as the Proposed Project's components do not affect any freeway culverts or any other corridors designed for wildlife movement, project related fencing would occur within the Storage Field property, which is already fenced at the perimeter. Continuation of the Storage Field use with large undeveloped areas within the Storage Field boundaries, as an alternative to more intensive development, would help protect the biological values of this area.

A small portion of the 66 kV sub-transmission alignment (immediately before the proposed SCE Natural Substation) is within the city of Los Angeles' Granada Hills-Knollwood Community Plan and includes the eastern extent of the Storage Field property. This area is designated open space; however public access within the Storage Field is prohibited (City of Los Angeles, 2003).

4.9.1.2 Regulatory Setting

This section describes the relevant goals and policies relating to land use for the jurisdictional agencies.

Federal Plans, Policies, Regulation and Laws

There are no Federal lands in the Proposed Project area.

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[5] Under Case No. ZA 17804 (Zone Variance) approved April 16, 1996, the site was granted a ZV to permit the continued operation of the dump facilities based upon certain terms and conditions. Condition 14 of the ZV required that upon the completion of the site's operation as a dump facility, the owner's shall advise the City and County Recreation and Parks Department that the property is available for recreational purposes (City of Los Angeles, 2007).

State Plans, Policies, Regulations and Laws

California Public Utilities Commission

Local plans and ordinances are evaluated in this PEA to assist the CPUC in determining whether the Proposed Project would be potentially consistent with locally adopted land use plans, goals, and policies.

Article XII, section 8, of the California Constitution states, "[a] city, county, or other public body may not regulate matters over which the Legislature grants regulatory power to the [Public Utilities] Commission." The Public Utilities Code authorizes the CPUC to "do all things, whether specifically designated in this act or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction." Cal. Pub. Util. Code §701. Other Public Utilities Code provisions generally authorize the CPUC to modify facilities, to secure adequate service or facilities, and to operate so as to promote health and safety. Thus, under the California Constitution and Public Utilities Code, the CPUC has broad authority to preempt local regulation of public utilities, particularly when a local government attempts to unduly burden a public utility use or operations. Cities and Counties cannot impose regulations that place significant burdens on utility operations. In addition, in the context of electric utility projects, CPUC G.O. 131-D, Section XIV.B states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters." As CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities in the State of California, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluations are anticipated for the Proposed Project or alternatives. SoCalGas and SCE would be required to obtain all applicable ministerial building and encroachment permits from local jurisdictions for the Proposed Project.

Regional and Local Plans, Policies, Regulations, and Ordinances

The Proposed Project would cross lands within the county of Los Angeles, city of Santa Clarita, and the city of Los Angeles. The county and city of Santa Clarita are engaged in a joint venture to develop a master planning document called the Santa Clarita Valleywide General Plan, One Valley, One Vision (OVOV). It is intended to result in a common General Plan for the entire Valley that will be administered by the City and County for lands within their respective jurisdictions. The General Plan was revised in 2008 and is currently pending adoption from the City and County (City of Santa Clarita OVOV, 2009). It is important to note that the City of Santa Clarita General Plan (1991) and Los Angeles County General Plan (1980) are still in effect, however the updated OVOV version is included in this discussion for reference, as it represents the most recent land use planning effort in the project area. SoCalGas provided the Los Angeles County Regional Planning Department with proposed policy and objective language in concert with the OVOV process in 2008. This language affected the following Los Angeles County General Plan elements; Land Use; Public Services and Facilities; and Mineral Resources. Much of this language has been incorporated into the General Plan draft EIR. If adopted, the language will identify the natural gas storage land use and protect the facility from encroachment of incompatible uses.

County of Los Angeles General Plan Land Use Element

The original Los Angeles County General Plan was adopted in 1980 and has governed land use in unincorporated Los Angeles County for nearly 30 years (Los Angeles County 2008). The General Plan was revised in 2008 and is currently pending adoption. The following policies from the General Plan are those current to January 1993 and would be applicable to portions of the Proposed Project route that traverse unincorporated Los Angeles County areas (Los Angeles County 1993):

Policy LU-9: Protect major landfill and solid waste disposal sites from encroachment of incompatible uses.

Policy LU-14: Assure that new development is compatible with the natural and manmade environment by implementing appropriate locational controls and high quality design standards.

Policy LU-17: Establish and implement regulatory controls that ensure compatibility of development adjacent to or within major public open space and recreation areas including National Forests, the National Recreation Area, and State and regional parks.

Los Angeles County General Plan, Conservation and Open Space Element

To help protect sensitive biological resources within unincorporated areas of the Santa Clarita Valley, the county of Los Angeles has designated SEAs. These are ecologically fragile or important land and water areas that are valuable as plant or animal communities. Within the Santa Clarita Valley, the County has designated five SEAs. SEAs are not preserves and limited development is allowed within these areas. Land intensive development in SEAs requires approval of a Conditional Use Permit (CUP) and an additional level of review by the SEA Technical Advisory Committee (Los Angeles County 2008). However, as discussed above, the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of public utilities in the State of California; therefore SCE would not be subject to SEATAC review or CUP approval.

As proposed, the Proposed Project would traverse the Santa Susana Mountains/Simi Hills SEA within unincorporated Los Angeles County (City Santa Clarita 2008). The boundaries of this SEA are currently being modified as part of the General Plan update and may ultimately include a portion of the existing 66 kV sub-transmission alignment on the eastern side of I-5 (as shown on Figure 4.9-3). This expansion of the existing SEA boundary is within the proposed, but not yet adopted, modification of the SEA (City of Santa Clarita, 2009).

Santa Clarita Valley Area Plan

The Santa Clarita Valley Area Plan, updated in 1990, is designed to guide management decisions within the unincorporated Los Angeles County areas of the Santa Clarita Valley, and is a component of the Los Angeles County General Plan. The Plan includes the following land use policies applicable to the Proposed Project:

Environmental Resources Management Element, Policy 2.1: Protect identified resources in Significant Ecological Areas by appropriate measures including preservation, mitigation, and enhancement.

Environmental Resources Management Element, Policy 2.3: Require site level analysis of proposed development projects within significant Ecological Areas to insure that adverse impacts upon resources within identified SEAs are minimized.

Environmental Resources Management Element, Policy 6.4: Encourage the use of public utility ROWs for trails when practical and compatible with the utility present, as shown on the Trails Plan.

Land Use Element--Environmental Hazards and Constraints, Policy 4.2: Designate areas of excessive slope (exceeding 25 percent) as “Hillside Management Areas,” with performance standards applied to development to minimize potential hazards such as landslides, erosion, and excessive runoff and flooding.

Community Design Element, Policy 3.2: Require that all new power distribution networks, communication lines, and other service network facilities be located underground wherever practical. Transmission lines should be located underground where feasible.

City of Santa Clarita General Plan

The General Plan, adopted on June 26, 1991, provides the framework for development in Santa Clarita. The following elements and policies are applicable to the portions of the Proposed Project route that traverses the city of Santa Clarita:

Land Use Element, Policy 2.8: Explore the utility ROWs for tree farms, nurseries, row crops, trails, and greenbelts.

Community Design Element, Policy 11.1: Encourage placement of transmission power lines and other mechanical equipment underground, where feasible, to maximize safety and minimize visual distraction.

Community Design Element, Policy 11.3: Require that all new on-site connections and utilities are installed underground and prepare and implement an underground program for existing development.

Community Design Element, Policy 11.5: Develop coordinated planning programs to ensure the efficient placement and consolidation of utility facilities within new development.

Community Design Element, Policy 11.8: Examine the use of the land under high power transmission lines for landscaping, tree farms, additional safe recreation areas, and other appropriate feasible uses.

Community Design Element, Policy 11.9: Encourage single pole transmission towers and cellular poles, and avoid reinforced structural support bases.

Parks and Recreation Element, Policy 7.4: Encourage multiple use and dedication of existing public easements for trail development including, but not limited to, utility lines and access easements, where appropriate.

Parks and Recreation Element, Policy 10.3: Encourage and promote cooperation between agencies to facilitate the multiple use of public ROWs consistent with the general plan and public safety.

Ridgelines and Hillsides

Both the city of Santa Clarita and the county of Los Angeles have recognized the hillside areas of the Valley to be important resources and have adopted hillside management regulations to restrict development on steeper slopes. The current hillside regulations applicable to the Proposed Project are presented below:

- **Ridgeline Preservation and Hillside Development Ordinance (Chapter 17.80)**

The provisions of the Ridgeline Preservation and Hillside Development Ordinance apply to parcels of land having average slope of 10 percent or more or are located in the area of a significant ridgeline as classified by the Significant Ridgelines Map for the City of Santa Clarita (City of Santa Clarita, 2002).

- **City of Santa Clarita Ridgeline Preservation (RP) Overlay Zone**

  As defined by Section 17.80.040 of the City of Santa Clarita Unified Development Code, primary and secondary ridgelines are considered significant ridgelines and should be preserved to the maximum extent feasible.

- **Los Angeles County Municipal Code, Ordinance 22.56.215**

  In order to protect resources, development in hillside management areas within the County is regulated by Ordinance 22.56.215 of the Los Angeles County Municipal Code. Hillside management areas are defined by the General Plan as land having natural slopes in excess of 25 percent. In addition to the ordinance regulating development in hillside management areas, the County also has Hillside Design Guidelines (1979) that are intended to provide guidance to those preparing plans for hillside development. These Guidelines apply to residential, commercial, and industrial projects within Hillside Management Areas (EIP Associates, 2004).

Substantial slopes and ridgelines exist on the Proposed Project site and in the Proposed Project vicinity. The Proposed Project area contains City-designated Significant Ridgelines and is almost entirely classified as a County Hillside Management Zone, as shown on Figure 4.1-1 in Section 4.1, due to the fact that a substantial portion of the site contains slopes of greater than 25 percent. A substantial portion of the Proposed Project site would be subject to a ridgeline preservation (RP) overlay zone under proposed City zoning and the County's review criteria for HM areas under existing zoning. Refer to Section 4.1 Aesthetics, for a discussion on the visual impacts of the transmission poles on hillsides and ridgelines.

City of Los Angeles General Plan-Land Use Element

The City of Los Angeles General Plan was most recently re-adopted on August 8, 2001 (City of Los Angeles, 2001). The following policies would be applicable to portions of the Proposed Project route that traverse the city of Los Angeles lands:

Policy 3.3.1 Accommodate projected population and employment growth in accordance with the Long-Range Land Use Diagram and forecasts in Table 2-2 Chapter 2: Growth and Capacity, using these in the formulation of the community plans and as the basis for the planning for implementation of infrastructure improvements and public services.

Policy 3.4.2 Encourage new industrial development in areas traditionally planned for such purposes generally in accordance with the Framework Long-Range Land Use Diagram and as specifically shown on the community plans.

4.9.2 Significance Criteria

The significance criteria for assessing the impacts to land use and planning come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Physically divide an established community;
- Conflict with an applicable environmental plan, policy, or regulation of an agency with jurisdiction over the project (including, not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.9.3 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with land use and planning.

4.9.4 Impact Analysis

The potential impacts to land use and planning from construction and operation of the Proposed Project were evaluated using the stated CEQA significance criteria and are presented in this section. For the purpose of presenting potential land use and planning impacts, construction and operation are discussed together for each CEQA criteria.

Would the Proposed Project physically divide an established community?

Construction and operation of the Proposed Project along the same corridor as existing roadways and SCE ROW is not likely to further divide or affect the unity of an established community. The existing ROW would not require substantial expansion, and maintenance would occur primarily within the established ROW. As shown in the previous figures, existing land uses along the route of the Proposed Project consists primarily of existing electric transmission and natural gas facilities, open space, low-density residential, industrial, commercial, and rural land.

The proposed 66 kV sub-transmission modification would involve pole replacement along an existing transmission right-of-way and would not create a physical barrier that could divide an established community. The proposed Central Compressor Station, proposed SCE Natural Substation, proposed SoCalGas PPL, and proposed office trailer and guard house relocation are located entirely within private land owned by SoCalGas. In most cases, construction activities would take place within previously disturbed areas due to prior development of the facility. These proposed modifications would not interfere physically with surrounding developments or land use because they occur within the existing boundary and in some cases an existing fence line within the Storage Field property. As a result, the Proposed Project and its components would not physically divide a community.

Would the Proposed Project conflict with an applicable environmental plan, policy, or regulation of an agency with jurisdiction over the project (including, not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

As noted above, local jurisdictions are preempted from unreasonably burdening public utility uses and operations. Thus, the local regulations identified above are not applicable to the extent they would place undue burdens on public utility use or operations. Nonetheless, as discussed below, the Proposed Project is consistent with local land use plans, policies and regulations.

The Proposed Project would involve installing new TSPs along the existing 66 kV sub-transmission route, within existing ROW; however, there are no new land use impacts or conflicts associated with these activities. The alignment of the proposed SoCalGas PPL is proposed to be above grade and would utilize an existing ROW in areas designated open space, industrial, non-urban, commercial, and low density residential, and would be compatible with existing uses. The Proposed Project would involve pole replacement along an existing 66 kV sub-transmission alignment, thus avoiding the need to create a new utility corridor in scenic open space or hillside management areas, which is consistent with Los Angeles County and city of Santa Clarita general plan policies. Furthermore, transmission structures are typically a permitted use in areas zoned Agriculture, which applies to the majority of the Proposed Project area. Construction of the proposed SCE Natural Substation and associated segment of the proposed PPL, and the proposed Central Compressor Station would take place within the Storage Field property, or within existing ROW. As mentioned earlier, SoCalGas prohibits public access to the property and plans for its retention as undeveloped land for ~ 30 years to 50 years (City of Los Angeles, 2007).

Both the city of Los Angeles and the county of Los Angeles have approved CUPs for the facility. The Proposed Project is consistent with the uses permitted under those approvals. The Proponent plans to submit to the County of Los Angeles an updated Exhibit A showing the location of new facilities for inclusion in the existing CUP permit file.

Would the Proposed Project conflict with any applicable habitat conservation plan or natural community conservation plan?

As stated in Section 4.4 Biological Resources, no such plans have been adopted in the Proposed Project area; therefore, there would be no impacts.

General Plan policy mandates the conservation of SEAs in as viable and natural a condition as possible without treating them as preserves and prohibiting development. The portion of the 66 kV alignment that parallels the boundary line of the city and county of Los Angeles (also coincides with the boundary that separates MDA Open Space and O'Melveny Park) is located within the Santa Susana Mountains/Simi Hills SEA. According to the proposed update to the Los Angeles County General Plan (2008), this SEA is "largely undisturbed by the urbanization that has occurred both to the south (San Fernando Valley) and to the north (Santa Clarita). These wilderness areas are important for maintaining gene flow and wildlife movement between the Santa Monica and San Gabriel Mountains, which are now largely isolated from one another by urban development."

The Proposed Project is not expected to disrupt the SEA's function as a wildlife corridor nor create a geographical barrier for gene flow, as wildlife could move freely underneath the existing 66 kV sub-transmission system. In addition, construction activities at the Storage Facility will primarily occur in previously disturbed areas. The Proposed Project does not affect wildlife culverts under the freeway and any proposed fencing occurs in areas that have previously been fenced. Grading activities may temporarily result in the conversion of natural habitat for pole placement; however these activities are not expected to impede wildlife movement. Based on personal communication with Los Angeles County, issues of concern typically relate to impeded culverts or wildlife corridors, which the project is not expected to disrupt (Lowry, pers comm., 2009). For more information, refer to Section 4.4 Biological Resources.

4.9.5 Mitigation Measures

Construction and operation of the Proposed Project would result in impacts that were determined to be **less than significant** therefore no mitigation is required or proposed.

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4.10 Mineral Resources

This section of the PEA describes the existing conditions related to the mineral resources for the Proposed Project. The impacts and mitigation measures, where applicable, are also discussed.

Project components that do not involve ground disturbance were not assessed. These components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations and construction support activities.

The California Geological Survey (CGS), formerly the California Division of Mines and Geology (DMG), classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act (SMARA) of 1975 and assists the CGS in the designation of lands containing significant aggregate resources. Mineral Resource Zones (MRZs) have been designated to indicate the significance of mineral deposits. The MRZ categories follow:

- **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3:** Areas containing mineral deposits the significance of which cannot be evaluated from available data.
- **MRZ-4:** Areas where available information is inadequate for assignment to any other MRZ.

According to the California DMG (1994), Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California, Part II Los Angeles County, Open File Report 94-14, Plate 1A-Generalized Mineral Land Classification Map of Los Angeles County-North-Half, the Proposed Project is located in MRZ-3 zone. MRZ-3 is part of the San Fernando Valley Production Consumption (PC), an area containing mineral deposits the significance of which cannot be evaluated from available data (CDMG, 1994). These zones are classified in accordance to the presence or absence of significant mineral deposits suitable for Portland Cement concrete grade aggregate. The Aliso Canyon Oil Field, lies on the northwest portion of this PC area. The entire Proposed Project lies in MRZ-3, with the exception of several lenses of MRZ-1 along Gavin Canyon (i.e., The Old Road) in the vicinity of Poles# 4-6 thru 4-9, and 5-1 thru 5-3, east of the 5 Freeway, and a MRZ-2 zone located adjacent and east-northeast of the Newhall Substation.

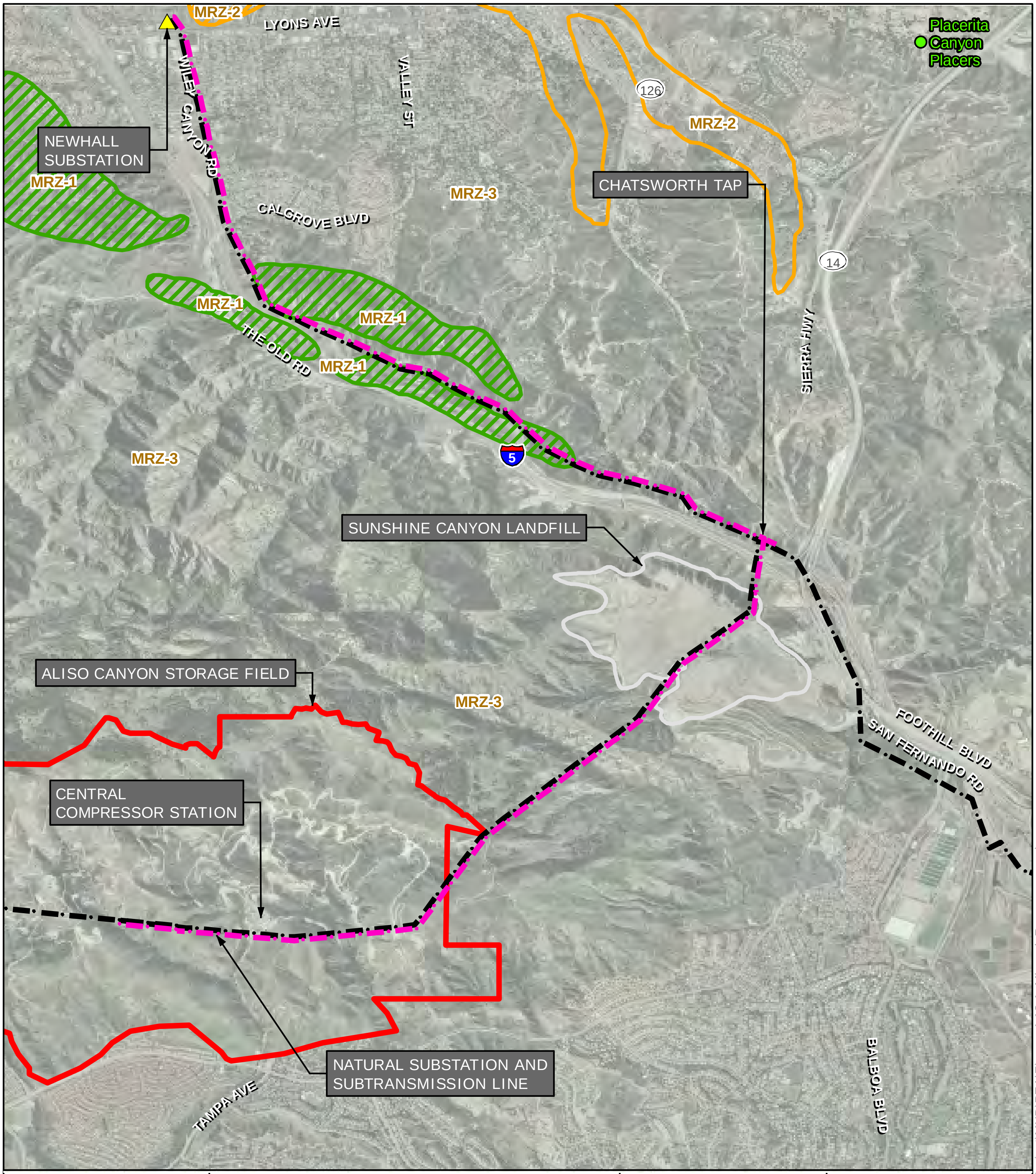
The primary mineral resources are the aggregate resources (sand, gravel and stone deposits). The nearest identified MRZ-2 zone, where significant deposits are known to exist which, per SMARA, warrant particular protection to insure the County a long-term supply of construction material, to the Proposed Project site is the Placerita Canyon Placers located ~ 6 miles to the northeast, represented in Figure 4.10-1.

The MRZ classifications are applied based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data. The designations are also based on socioeconomic factors, such as market conditions and urban development patterns.

4.10.1 Existing Setting

The Proposed Project is located in a central portion of the Transverse Ranges Physiographic Province in western Los Angeles County, California. The Transverse Ranges are characterized by a predominantly east-west trending system of faults, folds, and mountain ranges (Dolan et al., 2001). The Proposed Project is located within the former Aliso Canyon Oil Field in the Mountains just north of the San Fernando Valley in Los Angeles County, California. The Proposed Project consists of the Newhall subtransmission station; the 66 kV alignment; the San Fernando subtransmission station; and seven locations within the Aliso Gas Storage Facility (Natural substation locations #1 and #2, the new compressor station, the new office trailer location, the Porter 32 and Porter 47 staging areas, the Porter 27 soil processing area and the Porter Fee Road staging area). The central compressor station lies ~ 0.8-mile north of Sesnon Boulevard, north of HW 118 at an elevation of ~ 1,850 feet above MSL.

The Aliso Canyon Oilfield was discovered by Tidewater Associated Oil Company in 1938. Since the date of discovery the cumulative production at Aliso Canyon oilfield exceeds 60 million barrels of oil and 80 billion cubic feet of natural gas. The Aliso Canyon facility is currently operated by SoCalGas as one of the 10 largest gas storage fields in the United States (Solimar Energy, 2008).



Map Location

Legend

- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- Existing SCE Substation
- Sunshine Canyon Landfill
- Aliso Canyon Storage Field
- Mineral Resource Zone (MRZ)
- MRZ-1
- MRZ-2

1 inch = 4,000 feet

0 4,000 8,000 Feet

N W E S

Aliso Canyon PEA

Figure 4.10-1
Nearest Mineral Resource Zone to Proposed Project

Source: USGS Mineral Resource Data System and CDMG, 1994, Plate 1B

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-10-1_Mineral_Resources.mxd

The primary mineral resources of Los Angeles County are natural aggregates (sand, gravel), crushed rock and petroleum (oil and gas). These resources are important to the physical and economic development of the County.

Sand and gravel are typically used to produce the following materials:

- Portland-Cement-Concrete Aggregate (PCC-grade aggregate)
- Asphaltic-Concrete Aggregate (AC-grade aggregate)
- Road Base
- Railroad Ballast
- Rip-Rap
- Fill

Other minerals of commercial value are asphalt, clay, expansible shale, gypsum, limestone, and phosphate. Pursuant to the California SMARA of 1975, and its subsequent revisions, aggregate resources have been identified and mapped, and those areas designated MRZ-2 are areas where significant deposits are known to exist which, per SMARA, warrant particular protection to insure the County a long-term supply of construction material.

Oil and Gas Fields .

The Aliso Canyon structure is primarily a southeast-dipping nose with Pliocene oil zones trapped up dip to the north by the Santa Susana fault and to the west by the Frew fault. The deeper Miocene and Eocene productive oil sands are trapped up dip by the south dipping Ward reserve fault in the centre of the field. These deeper sands, known as the Sesnon and Frew sands are the primary gas storage zones in the main Aliso Canyon field (Solimar Energy, 2008).

An un-drilled fault block has been identified next to the Aliso Canyon Field which has produced 60 million barrels of oil and 180 million cubic feet of gas before being converted to a gas storage unit. Various oil companies have installed oil wells for petroleum withdrawal. These companies include Termo, Chevron, ExxonMobil, SoCalGas, etc. The oil field is currently being used as a gas storage field (Storage Field). The Toro Oil and Gas field is about 500 feet to the north of the site. The Oat Mountain Oil field is located to the northwest of the Proposed Project.

According to DOGGR, oil and gas exploration and pumping from proven reserves has occurred extensively within the Santa Susana Mountains. Numerous oil fields exist, to name a few, SoCalGas, Chevron U.S.A. Inc., ExxonMobil Corp., L. A. Ventura Oil Fields Co., Placerita Oil Co., and Porter Sesnon et al.

The Aliso Anticline was explored as a potential oil trap by drilling numerous exploratory borings within the area. The DOGGR's Regional Wildcat Map 254 for District 2 indicated that numerous wells are located within the Proposed Project. According to DOGGRs Wildcat Map # 254 and conversations with DOGGR personnel, the wells within the Proposed Project area and vicinity consist of idle, active and abandoned, and dry wells. A total of 242 oil wells have been identified within the entire area and zones other than the oil field are as follows:

- 134 active wells
- 47 inactive wells
- 56 abandoned oil wells

- 2 of unknown status
- 3 cancelled wells

The DOGGR's Regional Wildcat Map No. 254 indicates that 83 gas storage and injection wells are located within the storage zone. The locations of these gas wells are depicted on Figure 3.2-1. However the Storage Filed maintains an independent list of wells, which show a total of 116 injection/withdrawal wells, two observation wells, and two water disposal wells.

According to SoCalGas, the existing wells will not be impacted as a result of this Proposed Project nor is there any potential for significant hazards to occur to the environment. Also, there will not be any new injection/withdrawal wells constructed nor are there any abandoned gas wells on the Proposed Project site. No gas well abandonments are planned for the Proposed Project. There will not be any additional monitoring or test wells constructed as part of the Proposed Project.

According to DOGGR, Ventura office, the Aliso Canyon Oil field has specific permit requirements for the underground gas storage operations as addressed to SCG in their letter, entitled "Gas Storage Project, Aliso Canyon, Sesnon Frew Zone", dated April 18, 1989 (revised on July 26). Several conditions of the project operation are approved provided that:

- All injection piping, valves and facilities meet or exceed design standards for the maximum anticipated injection pressure and are maintained in a safe and leak free condition;
- The gas storage reservoir pressure shall not exceed 3600 psi. Tests may be required to establish that no damage will occur from excessive injection pressures; and
- DOGGR is notified of any anticipated changes in a project resulting in alteration of conditions that were originally approved, such as: increase in project size; increase in approved zone pressure; changes in injection-withdrawal intervals; changes in observation-collection intervals; or monitoring procedures.

Although AECOM requested copies of the active permits on file with DOGGR on June 10, 2009, no permits were provided.

4.10.2 Significance Criteria

The significance criteria for assessing the impacts to mineral resources come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

- Result in loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

4.10.3 Applicant Proposed Measures

There are no APM's associated with mineral resources.

4.10.4 Environmental Impacts

The potential impact to mineral resources from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential mineral resource impacts, CEQA criteria were evaluated and are discussed together for construction and operations.

Would the Proposed Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

According to the California DMG (1994), Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California, Part II Los Angeles County, the Proposed Project is located in MRZ-3 zone, an area containing mineral deposits the significance of which cannot be evaluated from available data.

There are no known mineral resource areas within the Proposed Project area. The two closest MRZ-2 Zones to the Proposed Project are:

- Placerita Canyon Placers is located ~ 6 miles to the northeast, as identified by the USGS Mineral Resource Data System.
- Calmat Company (Sheldon) is located approximately 10 miles to the southeast of the proposed Project, as identified by the DMG, Mineralized Land Classification Map, 1994., and is not shown on Figure 4.10-1 due to the scale of the Figure.

Therefore, the construction and operation of the Proposed Project would not result in any impacts to mineral resources.

Would the Proposed Project result in loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Los Angeles and Ventura Counties have identified several areas as MRZ-2 mineral resource protection zones, none of which are located in the Proposed Project. However, the Aliso Oil Field is located within the Proposed Project. Construction and operation of the Proposed Project would have no impact on the loss of availability of these locally important mineral resources (oil and gas). Therefore, the construction and operation of the Proposed Project would not result in any environmental impacts to mineral resources.

4.10.5 Mitigation Measures

The Proposed Project was determined to have **no impact** due to construction and operation; therefore no mitigation is required or proposed.

4.10.6 References

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California Division of Oil, Gas, and Geothermal Resources (DOGGR) Wild Cat Map 254

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4.11 Noise

This section describes sound and noise in the area of the Proposed Project. The potential noise impacts and alternatives are also discussed.

The Proposed Project components that do not generate noise; or would clearly not impact noise sensitive land uses were not assessed. These components include the installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations. Additionally, none of the Proposed Project components would expose people working or residing in the project area to excessive noise levels due to activities at public use airports or private airstrips and therefore does not require assessment

4.11.1 Existing Noise Setting

The Aliso Canyon Natural Gas Storage Field is a working natural gas storage field. Within the Storage Field, existing structures include the TDC compressor station, office trailers, a guard house, vehicle access, equipment storage and equipment.

<u>Aliso Canyon Storage Field</u>

Proposed Office Trailer Relocation

The location of the existing office trailers is shown on Figure 3.1-3. The primary noise sources at this location are the components of the proposed Central Compressor Station. Secondary noise sources would include vehicles accessing the site.

Guard House Relocation

The location of the existing guard house is represented on Figure 3.7-3, in Chapter 3.0. The only noise components at this location are from vehicles accessing the site.

TDC Station

The existing Compressor Station, shown on Figure 3.1-3, is the primary noise source within the Storage Field. Noise levels within 50 feet of the station's existing equipment can reach as high as 85 dBA during peak use. However, due to the distance to the nearest noise sensitive receptors and intervening terrain, the existing Compressor Station and associated turbines were not audible during noise measurements south of the Storage Field entrance on Tampa Avenue.

Proposed On-site PPL Construction Area

The location of the proposed PPL is shown on Figure 3.1-3. The proposed PPL would generally be located on undisturbed land with the exception of the tie in at the proposed Central Compressor Station and the proposed SCE Natural Substation.

Proposed SCE Natural Substation

The site proposed for the proposed SCE Natural Substation is currently vacant and does not include any noise sources. An existing substation, the Ward Substation, serves the existing TDC Station and will not be modified as part of the Proposed Project and no change in noise levels from this substation are anticipated. Neither the proposed SCE Natural Substation nor the Ward Substation contain noise sensitive receptors.

66 kV Sub-transmission System (consisting of two lines)

The existing 66 kV sub-transmission system is located along Wiley Canyon Road, I-5, and crosses the Sunshine Canyon Landfill as it passes west across the Storage Field. Noise levels along Wiley Canyon Road and I-5 are dominated by vehicular traffic, and average 60 to 67 dBA L_{eq} based on field noise measurements. Noise sensitive receptors are located along Wiley Canyon Road and west and east of I-5. No audible noise from the 66 kV sub-transmission system was detected during noise measurements.

Proposed modifications to the existing SCE 66 kV sub-transmission system include replacing the existing LSTs and H-frames with TSPs, and re-conductoring the existing two lines with 954 ACSR.

Other Substations

As previously identified in Chapter 3, no construction activities are proposed at the Newhall and Chatsworth Substations. Upgrades of relay facilities and new connections at these substations would not alter the existing operational noise environment at these substations.

Up to four existing LSTs will be removed and three to four new TSPs will be installed at the San Fernando Substation, which would require some construction activities during the removal and placement of the poles.

4.11.1.1 Noise Sensitive Receptors

Noise sensitive receptors are generally considered humans engaged in activities, or utilizing land uses, that may be subject to the stress of significant interference from noise. Activities usually associated with sensitive receptors include, but are not limited to, talking, reading, and sleeping. Land uses often associated with sensitive receptors include mobile homes, hotels, motels, hospitals, nursing homes, education facilities, and libraries.

Noise sensitive receptors in the Proposed Project vicinity include the residences located to the east and west of Wiley Canyon Road, the residences north of the Newhall Substation, residences east and west of the San Fernando Substation, and residences south of the proposed Central Compressor Station site along Sesnon Boulevard. In addition to these residences, there are churches and schools within the vicinity of the Proposed Project components. The Wiley Canyon Elementary School and the Valley Community Church/Rise and Shine Preschool front Willey Canyon Road and are located along the alignment of the existing 66 kV sub-transmission system at the intersection of Wiley Canyon Road and La Glorita Circle/Evans Avenue. The Newhall Church of the Nazarene is located west of I-5 along The Old Road between Towsley Canyon Road and East County Motorway.

The San Fernando Mission and Bishop Alemany High School are located adjacent to the San Fernando Substation to the north. Immediately to the east and west of the substation are office and administration buildings associated with the San Fernando Mission. Residences are generally 500 feet or further from the substation. However, residences south of Brand Boulevard are located approximately 340 feet south of the nearest pole replacement in Brand Park.

4.11.1.2 Vibration Sensitive Receptors

Vibration sensitive receptors are generally considered humans engaged in activities, or utilizing land uses, that may be subject to significant interference from vibration. Activities and land uses often associated with vibration sensitive receptors are similar to those associated with noise sensitive receptors. Primary vibration sensitive receptors of concern in the Proposed Project vicinity include the residences located to the east and west of Wiley Canyon Road. In addition to these residences, there is are churches and schools within the vicinity of the Proposed Project components. The Wiley Canyon Elementary School and the Valley Community Church/Rise and Shine Preschool are located along the alignment of the existing 66 kV sub-transmission system at the intersection of Wiley Canyon Road and La Glorita Circle/Evans Avenue. The San Fernando Mission and Bishop Alemany High School are located adjacent to the San Fernando substation to the north, east, and west. Residences south of the proposed Central Compressor Station site and the Newhall Church of the Nazarene are located at sufficient distances that construction-related vibrations would not be noticeable. Similarly, vibrations associated with the construction activities at the San Fernando substation would not be noticeable at local residences located to the south, west, and east of the substation.

4.11.1.3 Noise and Vibration Terminology and Concepts

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 1998).

Decibels and Frequency

In its most basic form, a continuous sound can be described by its frequency or wavelength (pitch) and its amplitude (loudness). Frequency is expressed in cycles per second, or Hz. Frequencies are heard as the pitch or tone of sound. High-pitched sounds produce high frequencies; low-pitched sounds produce low frequencies. Sound pressure levels are described in units called the decibel (dB).

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

Perception of Noise at the Receiver and A-Weighting

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the “A-weighted” noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A weighted measurements are written dB(A) or dBA. Table 4.11-1 shows the relationship of various noise levels to commonly experienced noise events.

Table 4.11-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 1,000 feet (300 meters)	--100--	
Gas Lawn Mower at 3 feet (1 meter)	--90--	
Diesel Truck at 50 feet, at 50 mph (80 km/hr)	--80--	Food Blender at 3 feet
Noisy Urban Area, Daytime Gas Lawn Mower at 100 feet	--70--	Vacuum Cleaner at 10 feet
Commercial Area Heavy Traffic at 300 feet	--60--	Normal Speech at 3 feet
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Notes: mph = miles per hour; km/hr = kilometers per hour Source: Caltrans 1998		

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two noise sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease; that a change of 5 dBA is readily perceptible; and that an increase (decrease) of 10 dBA sounds twice (half) as loud (Caltrans 1998).

Noise Propagation

From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise level as the distance from the source increases. The manner in which noise reduces with distance depends on the important factors described in the following discussion.

Geometric spreading from point and line sources: Sound from a small-localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates or drops off at a rate of 6 dBA for each doubling of the distance. The movement of the vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The sound level attenuates or drops off at a rate of 3 dBA per doubling of distance for line sources.

Ground absorption: Hard sites (i.e., sites with a reflective surface between the source and the receiver, such as parking lots or smooth bodies of water) receive no excess ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. Soft sites are sites that have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees and receive an excess ground attenuation value of 1.5 dBA per doubling of distance.

Atmospheric effects: Wind speed will bend the path of sound to “focus” it on the downwind side and make a “shadow” on the upwind side of the source. At short distances, up to 164 feet (50 meters), the wind has minor influence on the measured sound level. For longer distances, the wind effect becomes appreciably greater. Temperature gradients create effects similar to those of wind gradients, except that they are uniform in all directions from the source. On a sunny day with no wind, temperature decreases with altitude, giving a shadow effect for sound. On a clear night, temperature may increase with altitude, focusing sound on the ground surface.

Shielding by natural or man-made features, noise barriers, diffraction, and reflection: A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver location. The amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, as well as fabricated features such as buildings and walls, can significantly alter noise levels.

Noise Descriptors

Several rating scales (or noise “metrics”) exist to analyze adverse effects of noise on a community. These scales include the equivalent noise level (Leq), the day-night average sound level (DNL or Ldn), and the community noise equivalent level (CNEL). Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq}, meaning the equivalent noise level for that period of time. The period of time averaging may be specified; $L_{eq(3)}$ would be a 3-hour average. When no period is specified, a 1-hour average is assumed. It is important to understand that noise of short duration, that is, times substantially less than the averaging period, is averaged into ambient noise during the period of interest. Thus, a loud noise lasting many seconds or a few minutes may have minimal effect on the measured sound level averaged over a 1-hour period.

To evaluate community noise impacts, the DNL and CNEL were developed to account for human sensitivity to nighttime noise. The DNL represents the 24-hour average sound level with a penalty for noise occurring at night. The DNL computation divides the 24-hour day into two periods: daytime (7:00 a.m. to 10:00 p.m.), and nighttime (10:00 p.m. to 7:00 a.m.). The nighttime sound levels are assigned a 10-dBA penalty prior to averaging with daytime hourly sound levels. CNEL is similar to DNL except that it separates a 24-hour day into three periods: daytime (7:00 a.m. to 7:00 p.m.), evening (7:00 p.m. to 10:00 p.m.), and nighttime (10:00 p.m. to 7:00 a.m.). The evening nighttime sound levels are assigned a 10-dBA penalty prior to averaging with daytime hourly sound levels.

Perception of Vibration at the Receiver

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings caused by construction activities may be perceived as motion of building surfaces or rattling of windows, items on shelves, and pictures hanging on walls. Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 Hz to 200 Hz), or when foundations or utilities, such as sewer and water pipes, connect the structure and the construction activity.

Although groundborne vibration is sometimes noticeable in outdoor environments, groundborne vibration is almost never annoying to people who are outdoors (FTA 2006). The primary concern from vibration is the ability to be intrusive and annoying to local residents and other vibration sensitive land uses.

Vibration Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High frequency vibrations reduce much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

Vibration Descriptors

Vibration levels are usually expressed as single-number measure of vibration magnitude, in terms of velocity or acceleration, which describes the severity of the vibration without the frequency variable. The peak particle velocity (ppv) is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second. Since it is related to the stresses that are experienced by buildings, ppv is often used in monitoring of blasting vibration. Although ppv is appropriate for evaluating the potential of building damage, it is not suitable for evaluating human response. It takes some time for the human body to respond to vibrations. In a sense, the human body responds to an average vibration amplitude (FTA 2006). Because vibration waves are oscillatory, the net average of a vibration signal is zero. Thus, the root mean square (rms) amplitude is used to describe the "smoothed" vibration amplitude (FTA 2006). The rms of a signal is the square root of the average of the squared amplitude of the signal, usually measured in inches per second. The average is typically calculated over a 1-second period. The rms amplitude is always less than the ppv and is always positive. Decibel notation is used to compress the range of numbers required to describe vibration. The abbreviation VdB is used in this report for vibration decibels to reduce the potential for confusion with sound decibels.

4.11.1.4 Noise Regulations

This section summarizes regulations relating to noise and vibration applicable to the Proposed Project.

California State Standards

The State of California does not promulgate Statewide standards for environmental noise but requires each local jurisdiction to include a noise element in its general plan (California Government Code Section 65302(f)).

Local Municipal Government

Noise impacts will be regulated by three local municipalities for various Proposed project components. These include Los Angeles County, the City of Los Angeles, and the City of Santa Clarita. The noise regulations for operation, construction, and vibration (as applicable) for each of these are described below.

<u>Los Angeles County</u>

Operation

Section 12.08.390 of the Los Angeles County Code (LACC) regulates noise levels between properties within Los Angeles County. Section 12.08.390 requires that “no person operate or cause to be operated, any source of sound at any location within the unincorporated county…when measured on any other property either incorporated or unincorporated, to exceed” the identified noise level standards for a cumulative period of more than 30 minutes in any hour. Section 12.08.390 contains additional time limits for higher noise level that occurs for shorter periods. The LACC exterior noise level standards are shown in Table 4.11-2.

Table 4.11-2 Los Angeles County Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level
I	Noise-sensitive area	Anytime	45 dBA
II	Residential properties	10:00 pm to 7:00 am (nighttime)	45 dBA
		7:00 am to 10:00 pm (daytime)	50 dBA
III	Commercial properties	10:00 pm to 7:00 am (nighttime)	55 dBA
		7:00 am to 10:00 pm (daytime)	60 dBA
IV	Industrial properties	Anytime	70 dBA

Source: County of Los Angeles 2009

Construction

Section 12.08.440 of the LACC restricts construction activity, where construction disturbs a commercial or residential property, between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday and prohibits construction activity at any time on Sundays, or national holidays. Section 12.08.440 includes noise level limits at residential properties for mobile and stationary construction equipment (Table 4.11-3) Section 12.08.440 limits construction noise at commercial properties to a maximum of 85 dBA any time.

Table 4.11-3 Noise Level Limits for Los Angeles County

	Single-Family Residential	Multi-Family Residential	Semiresidential/ Commercial
Nonscheduled, Intermittent, Short-term Operation of Mobile Equipment			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA
Repetitively Scheduled and Relatively Long-term Operation of Stationary Equipment			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

Source: County of Los Angeles 2009

Vibration

Section 12.08.560 regulates vibration sources within the County. Section 12.08.560 indicates a vibration violation would occur if the vibration exceeded the “vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way.” According to Section 12.08.560, the perception threshold is a “motion velocity of 0.01 in/sec over the range of 1 Hz to 100 Hz.”

City of Los Angeles

Operation

The Los Angeles Municipal Code (LAMC) determines noise impacts based on the increase over the ambient noise level. Sections 112.01 and 112.02 indicate a noise ordinance violation would occur from most stationary sources when noise would exceed levels identified in Table 4.11-4 by 5 dBA or more.

Table 4.11-4 LAMC Section 111.03 Presumed Ambient Noise Level by Zone within Los Angeles

Zone	Day (7:00 a.m. – 10:00 p.m.)	Night (10:00 p.m. – 7:00 a.m.)
A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	50 dBA	40 dBA
P, PB, CR, C1, C1.5, C2, C4, C5, and CM	60 dBA	55 dBA
M1, MR1, and MR2	60 dBA	55 dBA
M2 and M3	65 dBA	65 dBA

Source: City of Los Angeles, 2009

Where ambient noise levels are not known, Section 111.03 of the LAMC sets the presumed noise levels for various zones within Los Angeles. If the measured ambient noise level is below those identified in Section 111.03, the noise levels identified in Section 111.03 are the presumed ambient noise level. Section 111.02 contains standards for conducting noise level measurements and adjustments for measured noise levels based on the source, character, and duration of the noise source.

Construction

Section 40.41 of the LAMC generally restricts construction activity to occur between the hours of 7:00 a.m. and 9:00 p.m. Section 40.41 further restricts construction activities within 500 feet of residential properties to between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays, or national holidays and prohibits construction at anytime on Sundays. Section 112.05 further restricts construction equipment operating within 500 feet of residential uses between the hours of 7:00 a.m. and 10:00 p.m. to 75 dBA L_{eq}.

Vibration

Los Angeles does not have guidance for evaluating the potential for structural or cosmetic damage or human disturbance and annoyance from vibration-generating activities.

City of Santa Clarita

Operation

Section 11.44.040 of the Santa Clarita Municipal Code (SCMC) regulates noise levels between properties within Santa Clarita. According to section 11.44.040, it is unlawful for any person within Santa Clarita to produce or cause or allow to be produced noise levels to a receiving property in excess of the noise levels presented in Table 4.11-5. Section 11.44.040 also contains noise level adjustments based on the source, character, and duration of the noise.

Table 4.11-5 Santa Clarita Property Line Noise Level Limits

Region	Time	Sound Level dBA
Residential zone	Day	65
Residential zone	Night	55
Commercial and manufacturing	Day	80
Commercial and manufacturing	Night	70

Construction

Section 11.44.080 of the SCMC limits construction activity within 300 feet of residentially zoned properties between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and 8:00 a.m. and 6:00 p.m. on Saturdays. All construction is prohibited on Sundays, New Year's Day, Independence Day, Thanksgiving, Christmas, Memorial Day, and Labor Day.

Vibration

Santa Clarita does not have guidance for evaluating the potential for structural or cosmetic damage or human disturbance and annoyance from vibration-generating activities.

4.11.1.5 Noise Measurements

Background noise measurements were collected at the Newhall Substation site, at five locations along the existing 66 kV sub-transmission route east of I-5, and one location south of the proposed Central Compressor Station site. A summary of the noise measurements is provided in Table 4.11-6 and measurement location are shown on Figure 4.11-1.

4.11.2 Significance Criteria

The significance criteria for assessing the impacts to noise levels come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would cause:

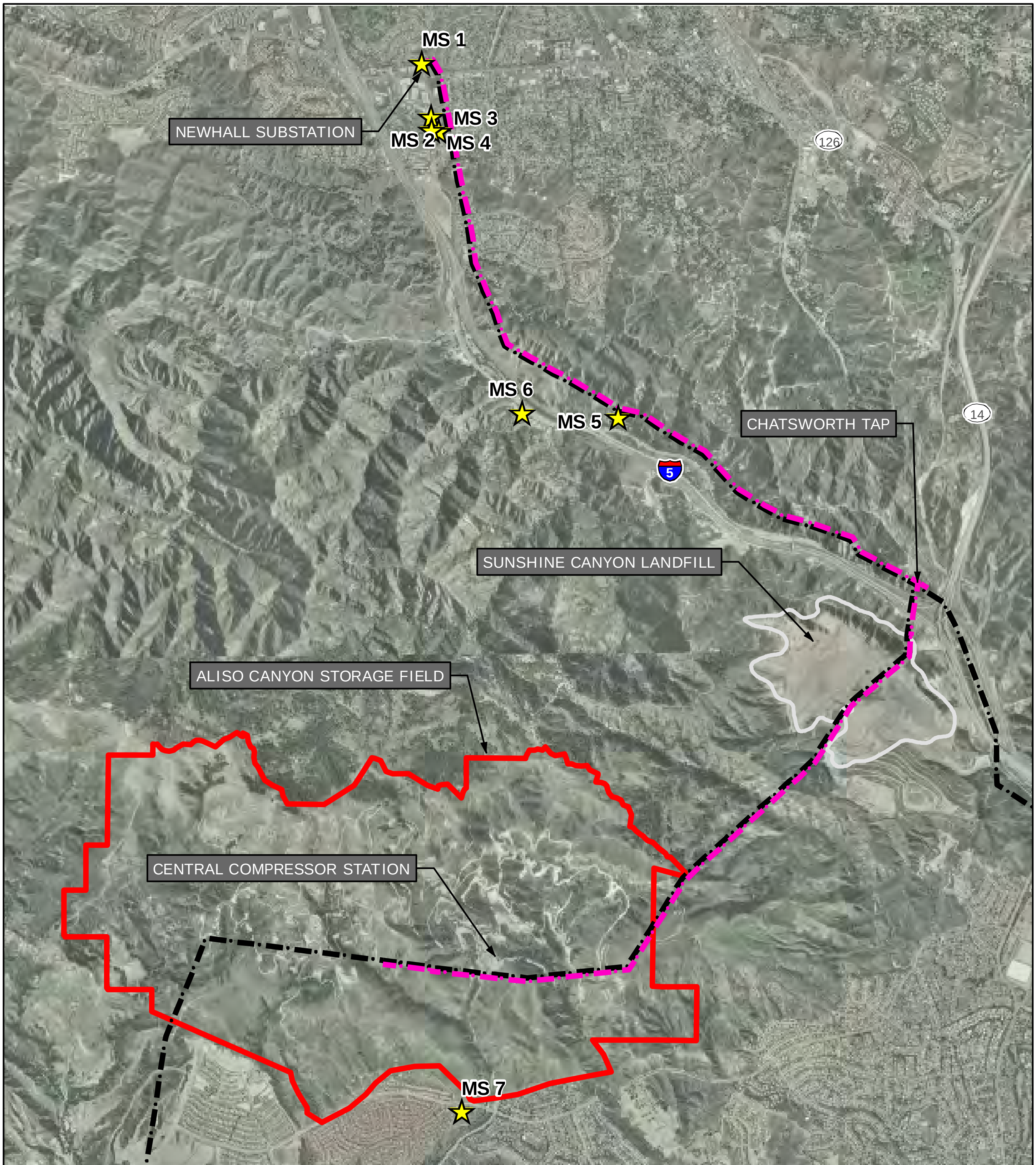
- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, where the project would expose people residing or working in the project area to excessive noise levels.

Table 4.11-6 Noise Measurement Summary

Site ID*	Location	Start Time	Duration (Minutes)	L_{eq} (dBA)	L_{max} (dBA)	L_{min} (dBA)	Noise Sources
1	North of Newhall Substation on small hill overlooking substation, 100 feet west of Wiley Canyon Road and 260 feet north of	8:57 a.m.	15	57	68	52	Traffic on Wiley Canyon Road and Lyon Avenue, aircraft over-flights, pedestrians, birds
2	Wiley Canyon Elementary School, 55 feet west of Wiley Canyon Road	9:41 a.m.	20	60	71	48	Traffic on Wiley Canyon Road, children playing, aircraft over-flights, pedestrians, birds
3	Cheryl Kelton Place	10:19 a.m.	15	48	57	44	Traffic on I-5 and Wiley Canyon Road, aircraft over-flights, pedestrians, birds
4	Wiley Canyon Road	11:07 a.m.	15	63	75	50	Traffic on I-5 and Wiley Canyon Road, aircraft over-flights, pedestrians, birds
5	Crescent Valley Mobile Home Park	11:39 a.m.	15	61	73	53	Traffic on I-5 and The Old Road, aircraft over-flights, pedestrians, birds
6	Newhall Church of the Nazarene	12:12 p.m.	10	66	76	59	Traffic on I-5 and The Old Road, pedestrians, birds
7	Community Recreation Common Area	1:02 p.m.	30	67	95	39	Traffic on Sesnon Boulevard, aircraft over-flights, dogs barking, pedestrians, parking lot noise

* The Site ID corresponds to locations shown in Figure 4.11-1.

All measurements were taken on Wednesday, April 15, 2009.



Map Location

Legend

Proposed SCE 66 kV Modification

Existing SCE 66 kV Alignment

Aliso Canyon Storage Field

Noise Measurement Locations

1 inch = 4,000 feet

0 4,000 8,000 Feet

N W E S

Aliso Canyon PEA
Figure 4.11-1

Noise Measurement Locations

Source:.State of California, DMG, Seismic Hazard Zone, Oat Mountain Quadrangle Seismic Hazard Zones, February 1,1998)

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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4.11.3 Applicant Proposed Measures

The following noise suppression techniques will be employed during construction to minimize the impact of temporary construction-related noise on nearby sensitive receptors:

APM-N-01: All construction activities occurring in association with the Proposed Project would operate within the allowable construction hours as determined by the applicable local agency and presented earlier in this document where feasible.

APM-N-02: A noise control plan would be prepared for all pole installation/replacement and substation modifications associated with the Proposed Project. The noise control plan would include, but not be limited to, the following:

- Stockpiling and vehicle staging areas would be located as far away from occupied residences as possible.
- All stationary construction equipment would be operated as far away from residential uses as possible.
- To the extent feasible, haul routes for removing excavated materials or delivery of materials from the site would be designed to avoid residential areas and areas occupied by noise sensitive receptors (e.g., hospitals, schools, convalescent homes, etc.).
- Idling equipment would be turned off when not in use for periods longer than 15 minutes.

APM-N-03: The project proponent would notify all sensitive receptors within 300 feet of construction of the potential to experience significant noise levels during construction.

4.11.4 Environmental Impacts

This section describes the methodology used to assess noise and the CEQA evaluation

4.11.4.1 Noise Evaluation Assumptions

Construction

The Proposed Project would include simultaneous construction of the proposed Central Compressor Station, the proposed SCE Natural Substation, proposed SoCalGas PPL, proposed relocation of office trailers and guard house, improvements at the San Fernando Substation, and pole installation/replacement along the 66 kV sub-transmission route. Descriptions of these activities are provided in Chapter 3.

Construction of the Proposed Project would involve the use of heavy equipment. Cranes and other heavy equipment would be used in the pole/tower replacement and conductor/cable installation. Grading would be required for creating staging areas, pole foundation pads, conductor pull areas, and in creating spur roads and/or improving access along roads in wilderness areas. In addition, grading would be required at the proposed office trailer and guard house relocation areas, the proposed Central Compressor Station site, and the proposed SCE Natural Substation site. Heavy construction equipment can generate short-tem noise levels up to 95 dBA L_{max} at 50 feet. Table 4.11-7 summarizes individual noise levels associated with various pieces of construction equipment.

Table 4.11-7 Typical Maximum Construction Equipment Noise Levels and Duty Cycles

Equipment	Noise Level at 50 ft	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
Insitu Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%

Source: FTA 2006.

Equipment	Noise Level at 50 ft	Typical Duty Cycle

kVA = kilovolt amps

Construction equipment used in this assessment is based on the construction workforce and equipment information provided in Section 3.11. Based on the various construction equipment lists provided in Chapter 3 for each project component, the loudest activity was modeled and used for impact evaluation. The noisiest activity for each project component is presented in Table 4.11-8.

Table 4.11-8 Modeled Construction Noise Levels from Center of Activity

Scenario	Noise Level at 50 feet
Proposed SCE Natural Substation Construction	84 dBA L_{eq}
Proposed Central Compressor Station Construction	84 dBA L_{eq}
Proposed Sub-transmission modification: Pole/Tower Removal	83 dBA L_{eq}
Proposed Sub-transmission modification: Pole Installation/Replacement	82 dBA L_{eq}

<u>Operation</u>

Proposed Central Compressor Station

The operational noise analysis for the proposed Central Compressor Station was based on an environmental noise assessment evaluating four gas-driven compressors proposed to replace the existing TDCs. The noise assessment was conducted in 2007 and prepared by Washington Group International (Washington Group 2007). The proposed VFD compressors have not been purchased; therefore, this analysis relies on data from similar equipment likely to be installed. In the Washington Group Report, the proposed Central Compressor Station would replace the existing gas powered turbines with newer gas driven turbines of approximately 20,500 horsepower each. While the Proposed Project would replace the gas turbines and compressors with VFD motor-driven compressors, these units are anticipated to be quieter than, or at worst equal to, the gas powered turbines and associated compressor units studied in the Washington Group Report. Based on a review of the Washington Group Report, the loudest single component was the compressors, in which 4 of them average 94 dBA L_{eq} at 50 feet under full load. As the turbine-driven compressors in the Washington Group Report had a performance design of 420 million standard cubic feet/day, it is anticipated the motor-driven compressors would generate a noise level similar to the compressors proposed as part of the Proposed Project. Electric-powered compressors are much quieter when compared to noise levels of gas-driven turbines. Therefore, the proposed electric-powered VFD compressors will not significantly impact or increase baseline noise levels. To present a conservative assessment, the noise level for all operating equipment at the proposed Central Compressor Station site is assumed to be a continuous 97 dBA L_{eq}.

Proposed Natural Substation Location

The proposed location for the proposed SCE Natural Substation is approximately 1,800 feet west of the proposed Central Compressor Station site. The primary sources of noise from substations are circuit breakers and transformers.

Transformers

Substations usually generate steady noise from the operation of transformers, and the cooling fans and oil pumps needed to cool the transformer during periods of high electrical demand. With all auxiliary cooling fans operating, the worst-case noise level from the transformers under full load is predicted to be no more than 66 dBA at three feet. Typically, transformers are located near the center of the substation footprint. Due to the distance to the nearest noise sensitive receivers, noise generated by transformers would not be audible at these distances over ambient noise levels.

Circuit Breakers

Circuit breaker noise occurs only very occasionally and not during normal operations. Circuit breaker noise would only occur to protect the grid in an unusual event, such as a lightning strike. A circuit breaker can generate maximum instantaneous noise levels (over approximately 6 milliseconds) on the order of 90 dBA L_{max} at 65 feet, which is approximately equivalent to 50 dBA L_{eq} at 50 feet.

At the time of this assessment, detailed design work still has to be undertaken for the proposed SCE Natural Substation, and a range of techniques can be used to ensure that transformer noise is avoided or mitigated so that required noise levels are achieved.

Based on this analysis the two primary types of noise effects from operation of the Proposed Project would be the weather dependent broadband noise from corona discharge along proposed SCE 66 kV sub-transmission modification, and the steady "hum" from the transformers at the proposed SCE Natural Substation. Due to the distance between the proposed SCE Natural Substation and the nearest sensitive receptor, the proposed SCE Natural Substation would not be audible to local residents.

66 kV Sub-transmission System

One of the potential environmental effects of the Proposed Project would be audible noise from the 66 kV sub-transmission system, which includes two source lines. In general terms, this noise would primarily consist of electrically-induced (corona discharge) elements.

Corona discharge noise

Corona discharge noise results from the partial breakdown of the electrical insulating properties of the air surrounding the conductors. When the intensity of the electric field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some of the energy may dissipate in the form of small local pressure changes that result in audible noise, or in radio or television interference. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a 120 Hz hum.

Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface, making corona discharge and the associated audible noise more likely. Therefore, audible noise from transmission lines is generally a foul weather (wet conductor) phenomenon. However, during fair weather, insects and dust on the conductors can also serve as sources of corona discharge. As part of the Proposed Project, SCE would install polymer (silicon rubber) insulators on the two lines proposed to be modified on the SCE 66 kV sub-transmission system. This material is hydrophobic (repels water) and minimizes the accumulation of surface contaminants such as soot and dirt, which in turn reduces the potential for corona noise to be generated at the insulators.

Considering that a 6 dBA decrease occurs with every doubling of distance from the source, transformer noise would be attenuated to approximately 40 dBA at 60 feet. SCE substation designs typically include an 8-foot block wall constructed for safety and security. If the final design for the proposed SCE Natural Substation includes a 8-foot block wall, it would provide noise attenuation of about 10 dBA, so that the transformer noise level outside the wall would be approximately 30 dBA (CPUC, 2007). This estimation is far below the most stringent noise impacted land use compatibility guidelines (State of California, 2003).

As a result, the Proposed Project would not cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project. Impacts would be less than significant.

4.11.4.2 Noise Impact Evaluation

The potential impact to noise from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential noise impacts, CEQA criteria were evaluated and are discussed separately for construction and operations, and organized by project component, where applicable, within each CEQA criteria.

Construction Impacts

Would the Proposed Project cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Proposed Project Components located within the Storage Field

The proposed Central Compressor Station, proposed office trailer and guard house relocations, proposed SoCalGas PPL and proposed SCE Natural Substation site are all located within the boundary of the Storage Field, which is within the county of Los Angeles. The County controls construction noise through time restrictions and quantified noise levels limits based on the type of source, the receiving land use, and time of day. The nearest noise sensitive land use to the Storage Field would be residences north of Sesnon Boulevard. The nearest residence is approximately 2,700 feet south of the nearest point of construction. At this distance, construction noise would be below 50 dBA L_{eq}, which is below the County's lowest noise level limit. Construction related traffic would be minimal on local roads as construction workers would park at a central lot and be shuttled to the construction site. Earthwork would be balanced on-site and would not result in off-site soil export, however some material deliveries are anticipated to be required. Therefore, construction activity within the Storage Field would result in a less than significant noise impact.

66 kV Sub-transmission System

The two existing SCE 66 kV sub-transmission source lines, originate at the Newhall substation, located at the intersection of Wiley Canyon Road and Lyons Avenue, in Newhall, a community in the city of Santa Clarita (see Figure 3.1-1). The alignment continues south to the San Fernando and MacNeil Substations. North of the I-5 and SR-14 interchange, a 66 kV sub-transmission segment of one of these lines crosses I-5 and the Sunshine Canyon Landfill, and continues west to SCE's Chatsworth Substation. Proposed modifications would generally occur along the portions of the sub-transmission line segments from the Newhall Substation south towards the Storage Field. Thus, portions of the proposed SCE 66 kV sub-transmission modification of concern would be located within the county of Los Angeles and the cities of Los Angeles and Santa Clarita.

Santa Clarita controls construction noise through time restrictions and does not have quantified thresholds for construction noise levels. Construction activities for the proposed sub-transmission system modifications, including pole/tower replacement and conductor/cable installation are expected to occur during the day. Nighttime construction is not anticipated. As a result, the construction activities within Santa Clarita would not violate the SCMC.

Pole/tower replacement and conductor/cable installation at San Fernando Substation would occur within 500 feet of residences within the city of Los Angeles. The nearest residences front Brand Avenue and are located approximately 340 feet south of the proposed pole replacement in Brand Park. The city of Los Angeles restricts construction activities occurring within 500 feet of residential uses between the hours of 7:00 a.m. and 10:00 p.m. to 75 dBA L_{eq}. At a distance of 340 feet construction noise related to pole/tower replacement and conductor/cable installation is anticipated to attenuate to 67 dBA or less. Thus, pole/tower replacement and conductor/cable installation are not anticipated to violate the LAMC.

Within the County, the Proposed Project would remove and install new power poles within 50 feet of residential uses within a mobile home park. As such, noise level during pole replacement could reach 82 dBA L_{eq} at the nearest residences. With the implementation of APM-N-01, noise levels will be maintained below the county threshold. Construction activities associated with the pole replacement would be intermittent and would be subject to noise level limits identified in Table 4.11-2. With implementation of the NCP, noise levels within residences of 50 to 100 feet of construction would comply with the County Code. No other residential land uses are located along the alignment of the proposed 66 kV sub-transmission modification, and noise levels would not exceed the identified limits at semi-residential/commercial land uses. Thus, construction impacts associated with the proposed SCE 66 kV sub-transmission modification would result in a less than significant impact with regard to the applicable noise policies and regulations.

Proposed Substation Upgrades

Two loop sections will be installed into the San Fernando Substation rack to provide a loop-in connection. Based on preliminary engineering, one LST inside the substation will be replaced. In addition, there are three LSTs located outside the substation that will be removed or replaced. Two of the existing LSTs are located on Bishop Alemany High School north of the substation; one is located in Brand Park south of the substation in the existing SCE ROW, all within 350 feet of the substation. Two new engineered TSPs will likely be installed within the existing substation footprint and two will likely be placed on each side of the substation, resulting in a reduction in the number of structures on the Bishop Alemany High School site. Approximately 1,000 feet of 954 ACSR conductors will be installed on the new TSPs, including new conductors needed inside the substation. SCE will install four 66 kV circuit breakers, eight sets of disconnect switches, and other associated equipment to provide the San Fernando Substation with two new positions.

As residences are more than 500 feet from the San Fernando Substation, the school would be the nearest noise sensitive receptor. The nearest school buildings are located approximately 250 feet from the nearest point of construction within the substation. As such, noise level during pole replacement would be on the order of 70 dBA L_{eq} at the nearest residences. Thus, pole/tower replacement and conductor/cable installation are not anticipated to violate the LAMC.

Would the Proposed Project cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Proposed Project Components located within the Storage Field

Pile driving may be required for the construction of foundations of the proposed Central Compressor Station. No pile driving is anticipated as part of the proposed office trailer and guard house relocations, construction of the proposed PPL, or construction of the proposed SCE Natural Substation. Assuming pile driving at a frequency range of approximately 18 hertz, vibrations associated with pile driving would attenuate to less than 0.01 in/sec ppv (68 VdB) at a distance of 200 feet. The nearest receptors to potential pile driving activities would be approximately 2,700 feet away. Vibration levels at this distance would be well below the perception level.

Typical construction activities, such as the tamping of ground surfaces and the passing of heavy trucks on uneven surfaces may produce minor groundborne vibration in the immediate vicinity of the activity, usually below the threshold of perception beyond 30 feet. Due to the distance to the nearest structure associated with the proposed office trailer and guard house relocations, proposed Central Compressor station and related structures, vibration impacts would be below the perception threshold at the nearest sensitive receptors. As a result, vibration impacts associated with construction at the Storage Field would be less than significant.

Proposed SCE 66 kV Sub-transmission System Modification

Typical construction activities, such as the tamping of ground surfaces and the passing of heavy trucks on uneven surfaces may produce minor groundborne vibration in the immediate vicinity of the activity, usually below the threshold of perception beyond 30 feet. While some existing poles are located within residential properties, these structures would be at least 30 feet from heavy construction equipment and no impacts to structures would occur at this distance from typical construction activities. As a result, vibration impact during pole/tower replacement and conductor/cable installation would be less than significant.

Proposed Substation Upgrades

No pile driving activities are anticipated as part of pole/tower replacement and conductor/cable installation at the San Fernando Substation. Typical construction activities, such as the tamping of ground surfaces and the passing of heavy trucks on uneven surfaces may produce minor groundborne vibration in the immediate vicinity of the activity, usually below the threshold of perception beyond 30 feet. The nearest residential structure would be approximately 50 feet from heavy construction equipment thus no impacts to structures would occur at this distance. Additionally, construction-related groundborne vibration would be below the perception level; as a result, vibration impact at the San Fernando Substation would be less than significant.

Would the Proposed Project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project?

Proposed Project Components located within the Storage Field

Construction activities within the Storage Field would be temporary in nature and would not result in permanent increase in noise levels. The construction of the proposed Central Compressor Station, proposed SoCalGas PPL, proposed SCE Natural Substation, and proposed relocation of the office trailers and guard house would have a less than significant impact on long-term ambient noise level in the Proposed Project area.

Proposed SCE 66 kV Sub-transmission System Modification

Construction activities associated with the pole/tower replacement and conductor installation would be temporary in nature and would not result in permanent increase in noise levels. Thus, pole/tower replacement and conductor installation would have a less than significant impact on long-term ambient noise level in the project area.

Proposed Substation Upgrades

Construction activities associated with the pole/tower replacement and conductor installation at the San Fernando Substation would be temporary in nature and would have a less than significant impact on long-term ambient noise level in the Proposed Project area.

Would the Proposed Project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project?

Proposed Project Components located within the Storage Field

Construction of the Proposed Project would require a variety of equipment. Noise levels for proposed construction activities at 50 feet from the center of activity are listed in Table 4.11-6. The maximum intermittent noise level expected during construction of the proposed Central Compressor Station and proposed SCE Natural Substation would be 84 dBA at approximately 50 feet, and noise levels would be attenuated by distance and the presence of structures and vegetation. The nearest noise sensitive receptors to the proposed Central Compressor Station, proposed office trailer and guard house relocations, proposed PPL, and proposed SCE Natural Substation are approximately 2,700 feet south of the nearest point of construction. At this distance construction noise levels would average 41 dBA L_{eq}. Noise levels on this order would generally not be audible at the nearest residences. Thus, construction activities within the Storage Field, including the proposed SCE Natural Substation, would result in a less than significant impact.

Proposed SCE 66 kV Sub-transmission System Modification

Construction associated with the proposed SCE 66 kV sub-transmission modification would require a variety of equipment. Noise levels for proposed construction activities at 50 feet from the center of activity are listed in Table 4.11-9. The maximum intermittent noise level expected during pole/tower replacement and conductor installation would be 82 dBA at approximately 50 feet, and noise levels would be attenuated by distance and the presence of structures and vegetation. Noise impacts associated with pole/tower replacement and conductor installation would mainly affect those persons closest to the 66 kV sub-transmission system in Santa Clarita and the County. Existing residential dwellings along Wiley Canyon Road and Crescent Valley Mobile Home Park along The Old Road, east of I-5, would experience the greatest temporary increase in noise levels above those existing without the Proposed Project. With the implementation of the NCP, noise levels would be controlled to comply with County Code. No other residential land uses are located along the alignment of the proposed SCE 66 kV sub-transmission modification and noise levels would not exceed the identified limits at semi-residential/commercial land uses. Thus, impacts associated with construction of the proposed SCE 66 kV sub-transmission modifications would be less than significant.

Proposed Substation Upgrades

Noise impacts associated with the proposed modification at the San Fernando Substation would mainly affect the Bishop Alemany High School. As residences are more than 500 feet from the San Fernando Substation, the school would be the nearest noise sensitive receptor. The nearest school buildings are located approximately 250 feet from the nearest point of construction within the substation. As such, noise level during pole replacement would be on the order of 70 dBA L_{eq} at the nearest residences. Thus, construction impacts associated with the proposed San Fernando substation upgrades would be less than significant.

Operation Impacts

Would the Proposed Project cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Proposed Project Components located within the Storage Field

Based on the noise levels predicted for the proposed SCE Natural Substation and proposed Central Compressor Station site, noise levels at the nearest residences would be below 45 dBA L_{eq} any time and would comply with the Los Angeles and County noise ordinances. Thus, the operation noise associated with the Proposed Project components located with the Storage Field would not violate any known ordinance and this impact would be less than significant.

Proposed SCE 66 kV Sub-transmission Modification

The alignment of the proposed SCE 66 kV sub-transmission modification would be located along an existing transmission corridor when in proximity to noise sensitive receptors. The noise levels generated by the proposed SCE 66 kV sub-transmission modification would be similar to the existing 66 kV sub-transmission lines. . Thus, the operation noise associated with the proposed SCE 66 kV sub-transmission modification would not violate local noise ordinances and this impact would be less than significant.

Proposed Substation Upgrades

While the Proposed Project would install new relay switches at the Newhall, Chatsworth, and San Fernando Substations, these upgrades would not increase the operational noise levels. Additionally, the up to four new TSPs to be installed at the San Fernando Substation would typically be higher than the existing LSTs, resulting in a greater path length between the noise source and receptors, which could potentially result in a reduction in noise levels associated with the proposed substation upgrades. Thus, the operation noise associated with the proposed improvements at the Newhall, Chatsworth, and San Fernando Substations would not violate any known ordinance and this impact would be less than significant.

Would the Proposed Project cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Proposed Central Compressor Station

Operation of the proposed Central Compressor Station and associated motors would generate vibration in the immediate vicinity of the equipment. However, due to the distance to the nearest vibration sensitive receiver, vibration levels would attenuate below the level of perception, thus operation of the proposed Central Compressor Station would result in less than significant impacts from vibration sources.

Proposed SCE Natural Substation

Operation of the transformers at the proposed SCE Natural Substation could produce groundborne vibration, but it would be perceptible only in the immediate vicinity of the transformer pad. Due to the distance to the nearest vibration sensitive receiver, vibration levels would attenuate below the level of perception, thus operation of the proposed SCE Natural Substation would result in less than significant impacts from vibration sources.

Proposed SCE 66 kV Sub-transmission Modification

There are no known vibration sources associated with proposed SCE 66 kV sub-transmission modification, thus there would be no vibration impact to sensitive receptors from the operation of the proposed SCE 66 kV sub-transmission modification.

Proposed Substation Upgrades

The proposed substation upgrades include installation of new relay systems and construction of two new positions at the San Fernando Substation. Construction of two new positions will require removal of two existing LSTs, and installation of four new TSPs. The proposed upgrades do not include installation of equipment that would produce groundborne vibration or impact the existing operating conditions. Thus operation of the proposed substation upgrades would result in less than significant impacts from vibration sources.

Would the Proposed Project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project?

Proposed Project Components located within the Storage Field

The development of the proposed Central Compressor Station site and the proposed SCE Natural Substation would have the potential to alter the existing noise environment. The proposed office trailer and guard house relocations would relocate noise associated with these facilities, but would not alter noise levels off-site.

Based on a review of aerial photography, the nearest receptors are approximately 3,500 feet southwest of the proposed Central Compressor Station site; at this distance noise levels would attenuate 37 dBA due to standard atmospheric conditions. Additionally, based on the modeling conducted for the Washington Group Report, the hills and other terrain blocking the proposed Central Compressor Station site from the surrounding neighborhood provide approximately 23 dBA attenuation. Thus, assuming the proposed Central Compressor Station site generates 97 dBA L_{eq} at 50 feet, these levels would attenuate to approximately 37 dBA L_{eq} at the nearest receptor. Based on the presumed ambient nighttime noise levels for Los Angeles, this would result in a combined noise level increase of 1.8 dBA, which would not be perceivable to the average human ear.

Noise levels from the proposed PPL would result in minor increases in noise levels in the immediate vicinity of the alignment of the proposed SCE 66 kV sub-transmission modification. Operational traffic and transportation impacts associated with operation of the Proposed Project are discussed in Section 4.15. Based on the traffic analysis, the Proposed Project would not result in an increase of operational traffic over existing volumes. As a result, the Proposed Project would not cause a substantial permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project. Impacts would be less than significant.

Proposed Sub-transmission Modification

The alignment of the proposed SCE 66 kV sub-transmission modification would be located within an existing transmission corridor, when in proximity to noise sensitive receptors. The noise levels generated by the proposed SCE 66 kV sub-transmission modification would be similar to the existing 66 kV sub-transmission system. Where corona discharges do occur, these would be intermittent and would not be expected to be audible at ground level and would not exceed local noise ordinances. Additionally, the new poles would typically be higher than the existing tower, resulting in a greater path length between the noise source and receptors, which would potentially result in a reduction in noise levels associated with the proposed SCE 66 kV sub-transmission modification. Thus, the operation noise associated with the proposed SCE 66 kV sub-transmission modification would not result in a substantial noise level increase and this impact would be less than significant.

Proposed Substation Upgrades

While the Proposed Project would upgrade relay switches at the Newhall, Chatsworth, and San Fernando Substations, these upgrades would not increase the operational noise levels. The noise levels generated by the upgraded San Fernando Substation would be similar to the existing San Fernando Substation. The four new poles would typically be higher than the existing towers, resulting in a greater path length between the noise source and receptors, which would potentially result in a reduction in noise levels associated with the modified SCE 66 kV sub-transmission lines that would be interconnected to the San Fernando Substation. Thus, the operation noise associated with the proposed improvements at the Newhall, Chatsworth, and San Fernando Substations would not result in a substantial noise level increase and this impact would be less than significant.

Would the Proposed Project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project?

Proposed Project Components located within the Storage Field

Temporary noise increases during operation of the proposed Central Compressor Station and the proposed SCE Natural Substation would consist of routine inspection and maintenance of the facilities, which would not contribute to a temporary increase in ambient noise in the area. Additionally, as previously discussed the Proposed Project components would not result in a significant permanent increase in noise levels. Thus, impacts would be less than significant.

Proposed SCE 66 kV Sub-transmission Modification

The alignment of the proposed SCE 66 kV sub-transmission modification would be located within an existing transmission corridor, in proximity to noise sensitive receptors. The noise levels generated by the proposed SCE 66 kV sub-transmission modification would be similar to the existing 66 kV sub-transmission system. Where corona discharges do occur these would be intermittent and would not be expected to be audible at ground level and would not exceed local noise ordinances. Thus, the operation noise associated with the proposed SCE 66 kV sub-transmission modification would not result in substantial temporary noise level increases and this impact would be less than significant.

Proposed Substation Upgrades

While the Proposed Project would upgrade relay switches at the Newhall, Chatsworth, and San Fernando Substations, these upgrades would not increase the operational noise levels. The noise levels generated by the modified San Fernando Substation would be similar to the existing San Fernando Substation. The approximately four new poles would typically be higher than the existing tower, resulting in a greater path length between the noise source and receptors, which would potentially result in a reduction in noise levels associated with the modified SCE 66 kV sub-transmission lines that would be interconnected to the San Fernando Substation. Thus, the operation noise associated with the proposed improvements at the

Newhall, Chatsworth, and San Fernando Substations would not result in a temporary noise level increases and this impact would be less than significant.

4.11.5 Mitigation Measures

The Proposed Project was determined to have **a less than significant impact without mitigation** due to construction and operation; therefore no mitigation is required or proposed.

4.11.6 References

California Department of Transportation (Caltrans) 1998. *Technical Noise Supplement*. October 1998. Available at: http://www.dot.ca.gov/hq/env/noise/pub/Technical%20Noise%20Supplement.pdf.

California Public Utilities Commission (CPUC) 2007. *Mitigated Negative Declaration, SCE’s Application for a Permit to Construct the Riverway Substation Project, Application No. 06-06-004, SCH No. 2007051159*, July 2007.

Electrical Power Research institute (EPRI) 1978. *Transmission Line Reference Book, 115 - 138 kV*. EPRI. 1987. Transmission Line Reference Book, 345 kV.

True, H.C., Rickley, E.J. and R.M. Letty. 1977., *Helicopter Noise Measurements Data Report Volume II, Helicopter Models: Bell 212 (UH-1N), Sigorsky S-61 (SH-3A), Sikorsky S-64 "Skycrane" (CH-54B), Boeing Vertol "Chinook" (CH-47C),* FAA-RD-77-57,II. April 1977,

State of California, 2003 (page 193)

United States Department of Transportation, Federal Transit Administration (FTA) 2006. *Transit Noise and Vibration Impact Assessment,* FTA-VA-90-1003-06. May 2006. Available at: http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf

Washington Group International (Washington Group) 2007. *Environmental Noise Assessment for Southern California Gas Company, Aliso Canyon Turbine Replacement Project*. November 2007.

4.12 Population and Housing

This section describes population and housing in the area of the Proposed Project. The potential impacts are also discussed. The Proposed Project would not result in any change to existing housing or induce population growth[1]. Therefore this section provides a general discussion of impacts to population and housing in accordance with the CEQA.

4.12.1 Environmental Population and Housing Setting

The Proposed Project is located in portions of Los Angeles County, city of Los Angeles, and city of Santa Clarita. The historic and future population growth data for Los Angeles County and the cities of Los Angeles and Santa Clarita is presented in Table 4.12-1. Population in Los Angeles County increased ~ 3.3 percent between 2003 and 2008. The city of Los Angeles and the city of Santa Clarita experienced a population increase of 4.1 percent and 8.1 percent, respectively, during the same time period.

Table 4.12-1 Historic and Estimated Population Growth

Year	City of Santa Clarita	City of Los Angeles	Los Angeles County
2003	163,818	3,885,816	10,034,571
2005	167,185	3,955,392	10,206,001
2007[1]	176,168	3,996,070	10,275,914
2008[1]	177,045	4,045,873	10,363,850
2015	193,866	4,128,125	10,971,602
2020	205,935	4,204,329	11,329,829
2025	217,660	4,277,732	11,678,552
2030	229,023	4,348,281	12,015,889
2035	239,923	4,415,772	12,338,620

Source: Southern California Association of Governments (SCAG), 2009

[1] Source: California Department of Finance (CDOF), 2009

The historic and future housing growth data for Los Angeles County and the cities of Los Angeles and Santa Clarita is presented in Table 4.12-2. Housing in Los Angeles County increased ~ 7.1 percent between 2003 and 2008. The city of Los Angeles and the city of Santa Clarita experienced a housing increase of 8.4 percent and 10.9 percent, respectively, during the same time period.

[1] Relay replacement at the Chatsworth Substation located in Ventura County will not impact population growth or housing and therefore Ventura County is not included in this CEQA evaluation.

Table 4.12-2 Historic and Estimated Housing Growth Significance Criteria

Year	City of Santa Clarita	City of Los Angeles	Los Angeles County
2003	52,965	1,290,422	3,177,439
2005	53,730	1,306,079	3,212,434
2007[1]	58,568	1,386,169	3,382,356
2008[1]	58,714	1,399,309	3,403,480
2015	64,081	1,424,701	3,509,580
2020	69,344	1,485,519	3,666,631
2025	73,453	1,532,998	3,788,732
2030	77,422	1,578,850	3,906,851
2035	80,687	1,616,578	4,003,501

Source: SCAG, 2009
[1] Source: CDOF, 2009

4.12.2 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with hydrology or water quality resources.

4.12.3 Significance Criteria

The significance criteria for assessing the impacts to population and housing derive from the CEQA Environmental Checklist. According to the CEQA Checklist, a project would cause a potentially significant impact if it would:

- Induce substantial population growth in an area, either directly (for example, by proposing new housing and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

4.12.4 Environmental Impacts

The potential impact to population and housing from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential impacts to population and housing, CEQA criteria were evaluated and are discussed separately for construction and operations

Construction Impacts

Would the Proposed Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Construction of the Proposed Project would not induce substantial population growth in the area, directly or indirectly. No new housing or new businesses are proposed under the Proposed Project. Construction activities would be temporary and of short duration, in which no permanent accommodations for construction workers would be needed. It is anticipated that most of the construction jobs would be filled by the existing area labor force. Any temporary accommodations (i.e., motels, hotels, etc.) that may be needed, would be available in the vicinity of the Proposed Project site.

While the Proposed Project includes the expansion of existing infrastructure and construction of new infrastructure, it is not anticipated to indirectly induce substantial population growth in the area because the purpose of these expansions and additions of infrastructure is to accommodate the necessary load requirements for the new motor driven injection compressors on the SoCalGas property. Therefore, no impacts would occur.

Would the Proposed Project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Construction of the Proposed Project would not displace any existing housing as there are no residential structures within the disturbance limits of the Proposed Project. Therefore, no impacts would occur.

Would the Proposed Project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

There are no existing residential or businesses structures within the disturbance limits of the Proposed Project. Implementation of the Proposed Project would not result in the displacement of any people that would require replacement housing. Therefore, no impacts would occur.

Operation Impacts

Would the Proposed Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

While the Proposed Project includes the expansion of existing infrastructure and construction of new infrastructure, it is not anticipated to indirectly induce substantial population growth in the area because the purpose of these expansions and additions of infrastructure is to accommodate the necessary load requirements for the new motor driven injection compressors on the SoCalGas property. In addition, the Proposed Project does not include the construction of any residential uses and therefore is not anticipated to directly or indirectly induce population growth in the area. Also, implementation of the

Proposed Project would not result in changes that would require additional workers/employees at SCE or SoCalGas. Operation of the Proposed Project would not induce population growth, directly or indirectly, in the area. Therefore, no impacts would occur.

Would the Proposed Project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Operation of the Proposed Project would involve some maintenance. This maintenance would occur within the SoCalGas property and within the SCE ROW. As there are no houses within the SoCalGas property or the SCE ROW, there would be no displacement of existing housing. Therefore, no impacts would occur.

Would the Proposed Project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Operation of the Proposed Project would involve maintenance. This routine maintenance would occur within the SoCalGas property and the SCE ROW. As there are no residential dwelling units within the SoCalGas property and the SCE ROW, there would be no displacement of people. Therefore, no impacts would occur.

4.12.5 Mitigation Measures

The Proposed Project was determined to have **no impact** due to construction and operation; therefore no mitigation is required or proposed.

4.12.6 References

Southern California Association of Governments (SCAG), 2008. 2007 Regional Transportation Program Growth Forecast, Adopted 2008. http://www.scag.ca.gov/forecast/downloads/excel/RTP07_CityLevel.xls [accessed April 2009].

State of California, Department of Finance (CDOF), 2009. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, April 2009.

4.14 Recreation

This section describes recreational resources in the area of the Proposed Project. The potential impacts are also discussed. The Proposed Project would not result in any change to existing neighborhood and regional parks or other recreational facilities. Therefore this section provides a general discussion of impacts to recreation in accordance with the CEQA.

4.14.1 Environmental Setting

The Proposed Project site is located in portions of unincorporated Los Angeles County and the cities of Los Angeles and Santa Clarita. The Santa Susana Mountains are the dominant topographic feature within the vicinity of the Proposed Project site. These mountains are within the acquisition area of the Santa Monica Mountains Conservancy that operates a number of open space and recreational parks, such as the 4,000-acre Santa Clarita Woodlands Park (including Ed Davis Park in Towsley Canyon, and East & Rice Canyon), the 500-acre MDA Open Space Preserve, and the 2.326-acre MDA Regional Park at Joughin Ranch. The city of Los Angeles operates the 672-acre O'Melveny Park located in Granada Hills, which provides connectivity with the MDA Open Space and Santa Clarita Woodlands beyond. The locations of these park and recreational facilities are shown on Figure 4.14-1.

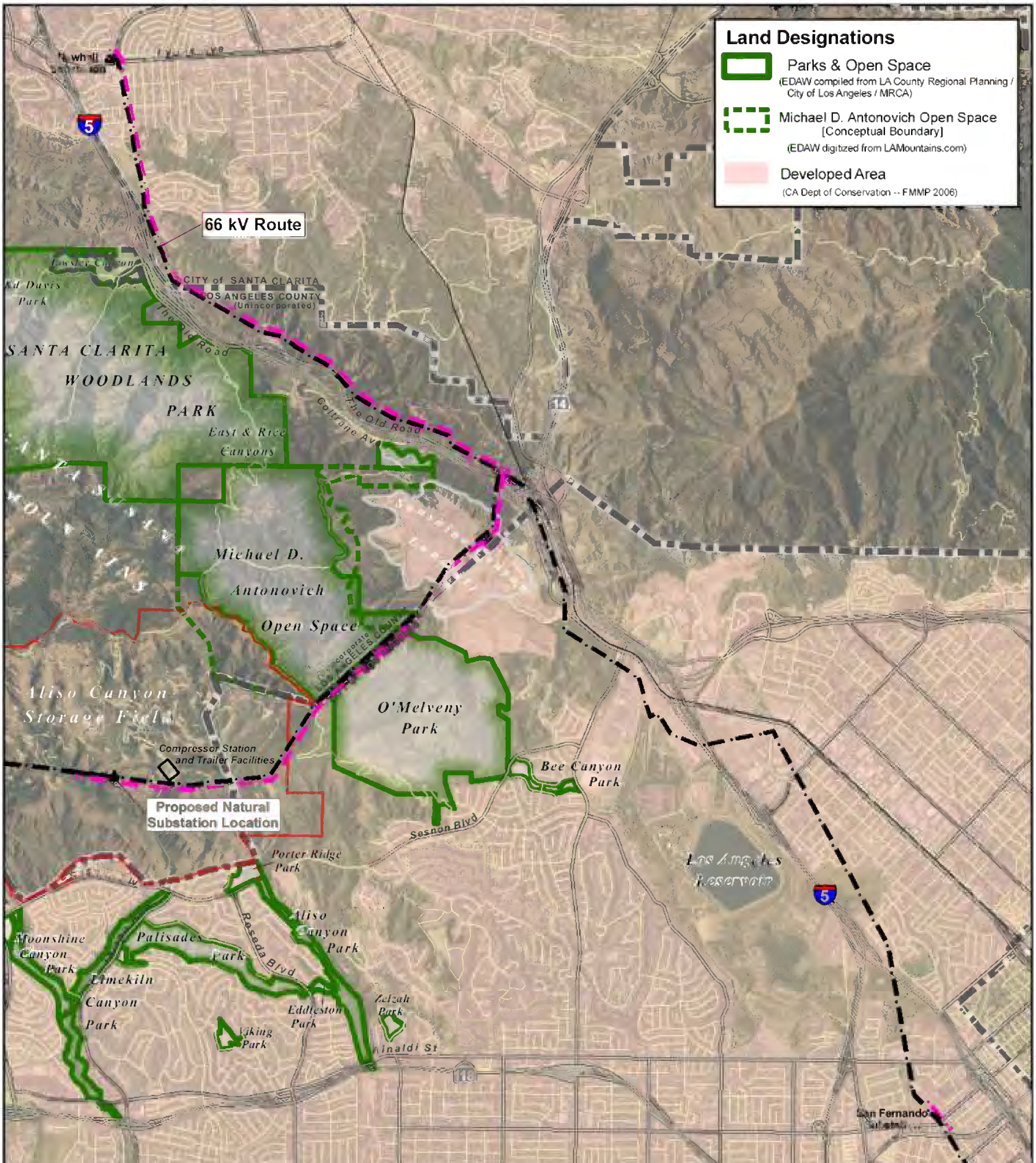
Additionally, the Porter Ranch and Knollwood communities in the city of Los Angeles, located south and southeast of the Proposed Project site, respectively, include various pocket parks and recreational facilities in proximity to the Proposed Project, which are also depicted on Figure 4.14-1. Some specific parks in Porter Ranch are Holleigh Bernson Memorial Park, Moonshine Canyon Park, Limekiln Canyon Park, Palisades Park and Palisades Recreation Center, Porter Ridge Park, Eddleston Park, and Aliso Canyon Park. Bee Canyon Park and Zelzah Park are in Knollwood.

4.14.2 Significance Criteria

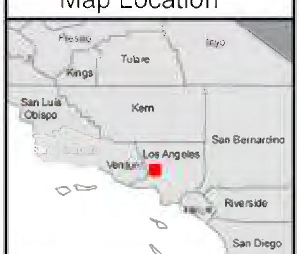
The significance criteria for assessing the impacts to recreation derive from the CEQA Environmental Checklist. According to the CEQA Checklist, a project would cause a potentially significant impact if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or

- Include recreational facilities or require the construction or expansion of recreational facilities which might have a physical effect on the environment.



Map Location



Legend

- 66 kV Sub-transmission Modifications
- Aliso Canyon Storage Field
- Existing 66kV Sub Transmission Line

Transportation Network (NavTeq 2006 / EDAW updates 2009)

- Highways and Main Roads
- Streets and Fire Roads

1 inch = 5,000 feet

0 4,000 8,000 Feet

N W E S

Aliso Canyon PEA

Figure 4.14-1
Parks and Recreation

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

4.14.3 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with recreation resources.

4.14.4 Environmental Impacts

The potential impact to recreation resources from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential impacts to recreation, CEQA criteria were evaluated and are discussed separately for construction and operations

Construction Impacts

Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Construction of the Proposed Project would not involve an increase in the use of existing recreational facilities as it is anticipated that most of the construction jobs would be filled by the existing area labor force. Therefore, the Proposed Project would not result in the need for additional recreational facilities, nor would it result in the expansion or deterioration of existing recreational facilities. No impact would occur. The Proposed Project may have temporary construction impacts to Brand Park where existing poles will be replaced with TSP's. SCE will try to minimize impacts to the park, where feasible, by scheduling construction activities during periods of low park visitor volume (e.g., non-weekend periods).

Would the Proposed Project include recreational facilities or require the construction or expansion of recreational facilities which might have a physical effect on the environment?

The Proposed Project does not include the construction of new or expanded recreational facilities. In addition, it is anticipated that most of the construction jobs would be filled by the existing area labor force. There would be no increased demand for recreational facilities that could result in the need for new or expanded recreational facilities. No impact to the environment from new or expanded recreational facilities would occur.

Operation Impacts

Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Operation of the Proposed Project would not result in an increase in the use of existing recreational facilities as implementation of the Proposed Project would not result in changes that would require additional workers/employees at SCE or SoCalGas. Therefore, the Proposed Project would not result in the need for additional recreational facilities, nor would it result in the expansion or deterioration of existing recreational facilities. Also, no operational impacts to size or access to Brand Park will result from the Proposed Project. No impact would occur.

Would the Proposed Project include recreational facilities or require the construction or expansion of recreational facilities which might have a physical effect on the environment?

The Proposed Project does not include new or expanded recreational facilities. In addition, implementation of the Proposed Project would not result in changes that would require additional workers/employees at SCE or SoCalGas. There would be no increased demand for recreational facilities that could result in the need for new or expanded recreational facilities. No impact to the environment from new or expanded recreational facilities would occur.

4.14.5 Mitigation Measures

The Proposed Project was determined to have **less than significant impact without mitigation** due to construction and operation; therefore no mitigation is required or proposed.

4.14.6 References

City of Los Angeles Department of Recreation & Parks. April 2009. http://www.laparks.org/ [accessed April 28, 2009].

Santa Monica Mountains Conservancy. April 2009. http://smmc.ca.gov/ [accessed April 28, 2009].

Santa Monica Mountains Conservancy, Los Angeles Mountains. April 2009. http://www.lamountains.com/parks_search.asp [accessed April 28, 2009].

4.15 Transportation and Traffic

This section evaluates the traffic and transportation impacts associated with the Proposed Project. This section also discusses the potential impacts and APMs that will be implemented as part of the Proposed Project design.

The Proposed Project components that do not involve increased transportation or traffic impacts were not assessed. These components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations and construction support activities.

4.15.1 Existing Setting

The primary mode of transportation in the area of the Proposed Project is vehicular travel on roadways. The transportation system in the area of the Santa Clarita Valley and the Porter Ranch area near the Storage Field, stretching through Los Angeles County and Ventura County, includes roadways, multi-use trails, bike paths, bus transits, and commuter rail.

Roadways are typically ranked according to guidelines set forth by the Highway Capacity Manual (1997) that assigns a Level of Service (LOS). LOS is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. LOS ratings are based on various factors such as speed, travel time, ability to maneuver, traffic interruptions, and safety. The level of service criteria utilized in this section is consistent with the standards outlined in the City of Santa Clarita's and City of Los Angeles' Traffic Impact Report Guidelines. The highest ranked roadways are designated LOS A, representing free-flow of traffic, and the lowest ranked roadways are designated LOS F, representing forced or broken-down flow. The City of Santa Clarita General Plan Circulation Element (2001) includes guidelines for the acceptable LOS for regional planning. The guidelines establish an LOS "C" as acceptable level of operation for residential and industrial areas and LOS "D" for commercial, freeway ramps and central business districts (CBDs). Signalized intersections in the City of Los Angeles use the Critical Movement Analysis (CMA) to evaluate an intersections level of service. However, the intersection of Tampa Ave./Sesnon Blvd. is unsignalized, and therefore the Highway Capacity Manual (HCM) methodology was used which calculates the level of service based on intersection delay.

The existing street system within the Santa Clarita Valley, including the city of Santa Clarita and the community of Newhall, consists of The Old Road, Wiley Canyon Road, Lyons Avenue, and Calgrove Boulevard. The City of Santa Clarita General Plan Circulation Element classifies a Major Arterial Highway as having at least six-lanes, divided, with no-on-street parking. The Old Road and parts of Wiley Canyon Road have been designated as Major Arterial Highways. Wiley Canyon Road north of Lyons Avenue is classified as a Major Arterial Highway. Lyons Avenue is classified as a Major Arterial Highway from The Old Road to Sierra Highway. The City of Santa Clarita General Plan Circulation Element classifies a Secondary Highway as a four-lane divided roadway with no on-street parking. Calgrove Boulevard is classified as a Secondary Highway. Wiley Canyon Road, south of Lyons Avenue to Calgrove Boulevard is currently constructed as a two-lane undivided roadway with intermittent on-street parking.

Existing traffic through the Sesnon/Tampa intersection meets the minimum criteria to warrant a traffic signal based on peak hour, but currently operates with an acceptable level of service during the peak hours.

4.15.2 Significance Criteria

The following significance criteria are based on the CEQA Guidelines. A project is determined to cause a potentially significant impact if it would:

- Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency access;
- Result in inadequate parking capacity; or
- Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

4.15.3 Applicant Proposed Measures

The following APMs will be implemented during construction.

APM-TT-01: The Proponent will implement a Commuter Plan that includes a designated off-site parking area which has adequate parking capacity for the maximum 150 workers, and a shuttle that will transport worker crews, ~ 10 workers per trip, from the parking area to the work site.

APM-TT-02: A Traffic Control Plan will be prepared in accordance with the latest version of the WATCH Manual, created by the California Joint Utility Traffic Control Commission, and will be implemented by SoCalGas and SCE as needed.

4.15.4 Environmental Impacts

The potential impact to traffic from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential traffic resource impacts, CEQA criteria were evaluated and are discussed separately for construction and operations. Because the project is not expected to have any impact due to operation of the Proposed Project, the CEQA criteria was only applied to potential impacts due to construction.

4.15.4.1 Construction Impacts

Construction of the Proposed Project would not result in impacts for the following CEQA criteria:

Would the Proposed Project result in change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

No operating airports or heliports are within a close proximity of the Proposed Project. Helicopters may be used during construction activities associated with the proposed SCE 66 kV sub-transmission modification if helicopter use is required for cable installation, existing SCE helicopter pads and laydown areas will be used. Therefore, the Proposed Project would not include any features that would disrupt or affect air traffic.

Would the Proposed Project cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

During construction activities within the Storage Field, the Proposed Project is expected to shuttle ~ 150 construction workers from an off-site parking area to the site. The off-site parking area has not been determined, but is proposed to be within 5 to 10 miles of the Storage Field entrance. For analysis purposes, a conservative estimate of 10 workers per shuttle trip (or 15 round trips per hour) was assumed. It is more likely that the vehicle occupancy would be greater, thereby reducing the amount of shuttle trips, but this provides a "worst case" condition. The increase in traffic associated with these additional trips has been evaluated at the intersection of Tampa Avenue/Sesnon Boulevard, the analysis and results are provided in Appendix B.3 Traffic Study. The current intersection LOS is rated "B" for AM, and "A" for PM. Based on the intersection operations, this location is anticipated to operate at acceptable service levels with the additional trips. The LOS would not change as a result of the Proposed Project. With the implementation of APMs, the impacts would be less than significant.

There would be up to 10 delivery and/or construction vehicle trips visiting the Proposed Project site on a daily basis. Based on the intersection operations, this location is anticipated to operate at acceptable service levels with the additional trips. The impacts would be less than significant.

Would the Proposed Project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

A temporary lane closure on Wiley Canyon Road may be required as part of Proposed Project's construction activities. Based on the level of service analysis provided in Appendix B.3, the intersection of Wiley Canyon Road/Lyons Avenue is expected to operate at acceptable levels in conjunction with the lane closure. The impacts would be less than significant.

Would the Proposed Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

A temporary lane closure on Wiley Canyon Road may be required as part of the Proposed Project's construction activities. With the implementation of a Traffic Control Plan, as established in APM-TT-02, the impact would be less than significant.

Would the Proposed Project result in inadequate emergency access?

Work associated with placing new conductors and poles along the 66 kV alignment and at San Fernando substation will require pulling conductor across roads and/or possibly require a lane closure. In these situations, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route. Flaggers may briefly hold traffic back while conductor is pulled across a roadway, but emergency vehicles would be provided access even in the event of temporary road closures. Therefore, emergency access would not be directly impacted by construction of the proposed Project because all streets would remain open to emergency vehicles at all times during construction activities.

Would the Proposed Project result in inadequate parking capacity?

Parking during construction of the SCE Proposed Project components, including the removal of existing LSTs and wooden H-frames, TSP installation, and re-conductoring, would occur at an existing SCE marshalling yard or at the other substation sites. Because the construction of the SCE Project components would not require the use of public parking areas, there would be no impacts to parking from construction of the Proposed Project.

Parking during construction of the Proposed Project components within the Storage Field, including construction of the proposed Central Compressor Station, proposed PPL, proposed office trailer and guard house relocations, would occur at a designated off-site parking area. With the implementation of APM-TT-01, there would be a less than significant impact associated with the Proposed Project.

Would the Proposed Project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The Proposed Project would not conflict with adopted policies, plans, or programs that support alternative transportation in the Proposed Project area since such policies, plans, or programs do no impose requirement on this project and no physical alterations to alternative transportation facilities would occur.

4.15.4.2 Operation Impacts

There are no anticipated impacts associated with operation of the Proposed Project.

4.15.5 Mitigation Measures

The Proposed Project was determined to have **no impact** due to operation and **a less than significant impact without mitigation** due to construction; therefore no mitigation is required or proposed.

4.15.6 References

City of Santa Clarita. 2008. *City of Santa Clarita General Plan* (1991) http://www.santa-clarita.com/cityhall/cd/planning/general_plan.asp Accessed April 2009.

City of Los Angeles. 2008. *City of Los Angeles General Plan* (2001) http://cityplanning.lacity.org/ Accessed April 2009.

4.16 Utilities and Service Systems

This section describes utilities and services in the area of the Proposed Project and assesses the potential environmental impacts. The Proposed Project would not result in any change to existing utilities and services; Proposed Project components that were not addressed in this section include the installation of upgraded relay systems at the Newhall, Chatsworth, and San Fernando Substations[1]. This section provides a general discussion of impacts to utilities and services in accordance with the CEQA.

4.16.1 Environmental Setting

Water and Wastewater Service

The Proposed Project site is located in portions of unincorporated Los Angeles County and the cities of Los Angeles and Santa Clarita.

The Los Angeles Department of Water and Power (LADWP) provides water service to the city of Los Angeles and wastewater service is provided to the City by the City of Los Angeles Sanitation Department of Public Works, Bureau of Sanitation (Bureau of Sanitation). LADWP supplies an average of 215 billion gallons of water per year to the City's 3.8 million residents. Approximately 50 percent of LADWP's water is drawn from the Eastern Sierras, 34 percent is purchased from the Metropolitan Water District of Southern California, and 15 percent is pumped from groundwater wells. Recycled water amounts to ~ 1 percent. The Bureau of Sanitation collects, conveys, treats, and disposes of wastewater within the City of Los Angeles, and provides watershed protection through sewer construction/maintenance and a stormwater pollution abatement program. The portions of the Proposed Project site located in city of Los Angeles and the county of Los Angeles would be served by LADWP and the Bureau of Sanitation. It should be noted that the LADPW is made up of a number of waterworks districts that serve portions of incorporated and unincorporated Los Angeles County; however, no LADPW district serves the Proposed Project site.

A portion of the Proposed Project site is located in the southern extent of the city of Santa Clarita. This area of the city of Santa Clarita is provided water service by the Newhall County Water District (NCWD). NCWD has potable deliveries of ~ 3.88 billion gallons per year to its 31,700 customers. Approximately 46 percent of NCWD's water is drawn from groundwater wells, and 54 percent is purchased from the Castaic Lake Water Agency. The city of Santa Clarita wastewater service is provided by the Sanitation Districts of Los Angeles County (Sanitation Districts), and the Santa Clarita Valley District (SCV District). The Sanitation Districts are a partnership of 24 independent districts that serve a combined 5.3 million people within an 800 square mile service area. The Sanitation Districts own and operate 1,400 miles of main trunk sewers and 11 wastewater treatment plants, which convey and treat ~ 500 million gallons per day of wastewater. Of the 500 million gallons per day, ~ 200 million gallons are treated and available for reuse.

[1] Relay replacement at the Chatsworth Substation located in Ventura County will not impact population growth or housing and therefore Ventura County is not included in this CEQA evaluation

The SCV District operates the Saugus and Valencia Water Reclamation Plants (WRP). The Saugus WRP is located at 26200 Springbrook Avenue, and has a capacity of 0.25 million gallons per day. The Valencia WRP is located at 28185 The Old Road, and has a capacity of 1.5 million gallons per day.

Solid Waste Service

According to the California Integrated Waste Management Board, there are a number of landfills that were used by unincorporated Los Angeles County, the city of Los Angeles, and the city of Santa Clarita in 2007. Of those landfills used, the two closest landfills to the Proposed Project site are the Sunshine Canyon Landfill and Chiquita Canyon Landfill. The Sunshine Canyon Landfill is located at 14747 San Fernando Road, Sylmar California, 91342, and is divided into two separate portions; one within the county of Los Angeles and the other within the city of Los Angeles. The city of Los Angeles portion of Sunshine Canyon Landfill has reached capacity. The part of the landfill in the county of Los Angeles is permitted to receive ~ 6,600 tons per day (TPD); however, the remaining permitted capacity is currently unknown, as the permitting application process for this landfill is under review. The Chiquita Canyon Sanitary Landfill is located at 29201 Henry Mayo Drive, Valencia California, 91384, and is north of the Proposed Project site. The Chiquita Canyon Landfill is permitted to receive ~ 6,000 TPD and has an estimated remaining capacity of 35,800,000 cubic yards.

4.16.2 Significance Criteria

The significance criteria for assessing the impacts to utilities and services derive from the CEQA Environmental Checklist. According to the CEQA Checklist, a project would cause a potentially significant impact if it would:

- Exceed wastewater treatment requirements of the applicable RWQCB;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or if new or expanded entitlements would be needed;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Comply with Federal, State, and local statutes and regulations related to solid waste.

4.16.3 Applicant Proposed Measures

The following measures will be implemented during construction:

APM-US-01: Construction of the Proposed Project will result in the generation of various non-hazardous waste materials, including wood, soil, vegetation, and sanitation waste (portable toilets). These materials will either be re-used at the construction site (e.g., clean soil used for backfill) or disposed at an appropriately licensed off-site facility.

APM-US-02: Construction activities will generate utility poles and other treated wood waste. This waste will either be reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, or disposed in the lined portion of a RWQCB-certified municipal landfill.

APM-US-03: Soils generated during excavation and grading activities which are or are suspected to be contaminated with oil or other hazardous materials; or materials resulting from spill cleanups; will be characterized and disposed off-site at an appropriately licensed waste facility. There are no known contaminated soils located at any of the Proposed Project construction locations.

APM-US-04: All hazardous and non-hazardous wastes generated during operation of the Proposed Project (e.g., waste oil and gas condensates from the proposed Central Compressor Station) will be classified and managed in accordance with Federal and State regulations and site-specific permits.

4.16.4 Environmental Impacts

The potential impact to utilities and service systems from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential impacts to utilities and service systems, CEQA criteria were evaluated and are discussed separately for construction and operations

Construction Impacts

Would the Proposed Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The Proposed Project includes construction and installation of the: proposed Central Compressor Station, proposed PPL, proposed office trailer and guard house relocations, proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission modification, and proposed substation upgrades. It does not include any components that would result in the generation of raw sewage such as a large housing project. Consequently, the Proposed Project would not discharge large volumes of wastewater or concentrated wastewater to a wastewater treatment facility, exceeding treatment requirements set forth by the RWQCB. As a result, construction of the Proposed Project would have no significant impacts to the treatment requirements of the RWQCB wastewater treatment plants serving the area.

Would the Proposed Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As described earlier, the Proposed Project would not result in the generation of raw sewage, nor create a demand for sewer collection and/or treatment facilities. The use of water during construction (for dust suppression) and operation (for landscaping) is minimal, and would not be in volumes or flow rates that would affect water treatment plant capacities. In addition, construction and operation of the Proposed Project would not discharge large volumes of wastewater. Construction and operation of the Proposed Project would have no impact to the expansion of water or wastewater treatment facilities serving the area.

Therefore, the Proposed Project would not require or result in the construction of new water or wastewater treatment facilities. No significant impacts would occur.

Would the Proposed Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The Proposed Project includes construction and installation of the: proposed Central Compressor Station, proposed PPL, proposed office trailer and guard house relocations, proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission modification, and proposed substation upgrades.. Construction of the Proposed Project would not result in any substantial increase of impermeable surfaces that could increase the amount of storm water discharge from the site. During construction, the replacement and modification of existing facilities would be accomplished within the existing footprint of those facilities, and disturbance of the site would not increase over the existing condition. Pole replacement would be either in place of, or adjacent to, the existing pole structures. In addition, BMPs are currently employed by the Proponent for construction activities at the SoCalGas Plant Station, including practices for handling of hazardous materials and minimizing potential impacts to storm water. Construction activities associated with the removal of the existing office trailers, installation of new office trailers, and installation of new guard house, would include implementation of all applicable BMPs. As a result, the Proposed Project would not require the construction of new storm water drainage facilities or expansion of existing facilities in the area. No significant impacts would occur.

Would the Proposed Project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The Proposed Project includes construction and installation of the: proposed Central Compressor Station, proposed PPL, proposed office trailer and guard house relocations, proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission modification, and proposed substation upgrades. Construction activities would require only a minimal amount of water (i.e., the temporary use of water for dust suppression) that would be accommodated from existing water supplies and entitlements. Therefore, implementation of the Proposed Project would not result in the need to expand existing water facilities or construct new water facilities. No significant impacts would occur.

<u>Would the Proposed Project result in the determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?</u>

Construction of the Proposed Project would not result in the generation of raw sewage, nor discharge of wastewater from the Proposed Project site. Thus, there would be no exceedence of the wastewater treatment capacity of any facilities. Therefore, construction of the Proposed Project would have no significant impacts to wastewater treatment providers in the area.

<u>Would the Proposed Project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?</u>

Construction of the Proposed Project would require the removal of existing LSTs to accommodate the new specially designed and engineered TSPs. As described earlier, an APM would ensure that any utility poles and other treated wood waste would either be reused by SCE, returned to the manufacturer, disposed in a Class I hazardous waste landfill, or disposed in the lined portion of a RWQCB-certified municipal landfill. Construction of the Proposed Project would also result in the generation of various non-hazardous waste materials, including wood, soil, vegetation, and sanitation waste (portable toilets). As discussed previously, an APM would ensure that these materials would either be reused at the construction site (e.g., clean soil used for backfill) or disposed at an appropriately licensed off-site facility. However, the amount of solid waste material generated from construction of the Proposed Project would be minimal and it is not anticipated that its solid waste generation would exceed the permitted capacity of any landfill (Chiquita Canyon Landfill accepts 6,000 TPD and has a remaining capacity of 35,800,000 cubic yards). Therefore, construction of the Proposed Project would not be served by a landfill with insufficient capacity to accommodate the Proposed Project's solid waste disposal needs. Impacts would be considered less than significant.

<u>Would the Proposed Project comply with Federal, State, and local statutes and regulations related to solid waste?</u>

Construction of the Proposed Project would comply with Federal, State, and local statutes related to solid waste. The Proposed Project includes the removal of existing steel electrical towers and replacement of gas compressors. It is anticipated that the steel towers and other recyclable materials would be deposited in a landfill or recycled, in accordance with all applicable statues and regulations. As a result, construction of the Proposed Project would comply with applicable federal, state, and local statutes and regulations related to solid waste. Impacts would be considered less than significant.

Operation Impacts

<u>Would the Proposed Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?</u>

The Proposed Project includes construction and installation of the: proposed Central Compressor Station, proposed PPL, proposed office trailer and guard house relocations, proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission modifications, and proposed substation upgrades. It does not include any components that would result in the generation of raw sewage such as a large housing project. Consequently the Proposed Project would not discharge concentrated wastewater or large volumes of wastewater to a wastewater treatment facility, exceeding treatment requirements set forth by the RWQCB. As a result, operation of the Proposed Project would have no significant impacts to the treatment requirements of wastewater treatment plants serving the area.

Would the Proposed Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As described earlier, the Proposed Project would not result in the generation of raw sewage, nor create a demand for sewer collection and/or treatment facilities. Therefore, the Proposed Project would not require or result in the construction of new water or wastewater treatment facilities. No significant impacts would occur.

Would the Proposed Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The Proposed Project consists of the upgrade of existing electrical infrastructure and replacement of gas compressors and would not result in any substantial increase of impermeable surfaces that could increase the amount of storm water discharge from the site. As a result, the Proposed Project would not require the construction of new storm water drainage facilities or expansion of existing facilities in the area. No significant impacts would occur.

Would the Proposed Project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Operation of the Proposed Project would not affect water supplies as it does not include Proposed Project components that would increase water usage. Therefore, implementation of the Proposed Project would not result in the need to expand existing water facilities or construct new water facilities. No significant impacts would occur.

Would the Proposed Project result in the determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Operation of the Proposed Project would not result in the generation of raw sewage, nor discharge of wastewater from the Proposed Project site. Thus, there would be no exceedence of the wastewater treatment capacity of any facilities. Therefore, operation of the Proposed Project would have no significant impacts to wastewater treatment providers in the area.

Would the Proposed Project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?

Operation of the Proposed Project would not increase solid waste generation over the existing condition since implementation of the Proposed Project would not result in changes that would require additional workers/employees at SCE or SoCalGas. Therefore, operation of the Proposed Project would not be served by a landfill with insufficient capacity to accommodate the Proposed Project's solid waste disposal needs. Impacts would be considered less than significant.

Would the Proposed Project comply with federal, state, and local statutes and regulations related to solid waste?

Operation of the Proposed Project would comply with Federal, State, and local statutes related to solid waste. The Proposed Project would not result in any change to the existing volume of, or compliance with, solid waste disposal, as implementation of the Proposed Project would not result in changes that would require additional workers/employees at SCE or SoCalGas. As a result, operation of the Proposed Project would comply with applicable Federal, State, and local statutes and regulations related to solid waste. Impacts would be considered less than significant.

4.16.5 Mitigation Measures

The Proposed Project was determined to have **no impact** due to construction and operation; therefore no mitigation is required or proposed.

4.16.6 References

California Integrated Waste Management District, April 2009. http://www.ciwmb.ca.gov/profiles/ [accessed April 28, 2009].

Newhall County Water District, April 2009. https://www.ncwd.org/about.asp [accessed April 28, 2009].

Sanitation Districts of Los Angeles County, 2009. http://www.lacsd.org/default.asp [accessed April 28, 2009].

4.17 Cumulative Analysis

4.17.1 Introduction

The objective of a cumulative impact analysis is to look at trends with regard to each environmental resource category and ensure that past, present and future projects in an area are aggregated to examine impacts in a big picture contextual approach. In the context of the Proposed Project, there are conditions that must be considered in the local and, depending on the parameter, regional context of the Proposed Project. This part of Los Angeles County, the city of Los Angeles, and the southern Santa Clarita area have experienced a dynamic and profound change in the landscape over the past 50 or more years. During this time frame, many open spaces have been developed and have been replaced with residential, commercial, public facilities and public works infrastructure, a landfill, highways, and roads and ornamental landscaping; yet, open space remains. It should be noted that there are still some areas remaining for new development in the local community and surrounding areas. The mix of development and remaining open space of the area is appropriate to note as the cumulative impact discussion should consider the developed nature of the area and how these existing conditions translate or contribute to the analysis. The combination of the urban and open space nature of the area and the projects currently under consideration locally, contribute to the evaluation of the cumulative impacts discussed for each environmental parameter. In some instances, the incremental addition of project impacts may be less substantial due to the already built out nature of the communities, or in some cases the incremental effect may exacerbate an existing condition due to limited capacity or resources as a result of the land use densities of the urban communities that exist today.

This PEA examines the potential cumulative impacts of the Proposed Project in relation to other existing and likely future projects. This analysis determined that there is not likely to be any significant cumulative change in the environment resulting from the incremental impact of the Proposed Project when added to other development projects. Consequently, the Proposed Project is not expected to result in or contribute to significant cumulative impacts.

4.17.2 Methodology

One way to determine trends in an area for cumulative analysis is through an inventory of projects in the Proposed Project study area which are in the process of being developed or which will be developed in the near future. A list of planned area development projects within a five-mile radius of the Proposed Project alignment was developed to identify the locations of other approved and pending projects that are anticipated to be either under construction or operational by the time of the Proposed Project completion. The five mile radius was determined as a baseline geographic area that would cover some portions of the local jurisdictions including the City of Los Angeles, County of Los Angeles and City of Santa Clarita for the purposes of locating general plan land use, committed projects and those under some planning consideration. The environmental resource categories were considered in determining the radius; although each environmental parameter may include a different total study area. The radius was selected for the purposes of generating a land use exhibit of local projects. After review of the parameters, it was determined that aesthetics was representative for a proper radius, as the potential viewshed may be more far reaching in geographic extent than some of the other parameters considering the heights of the poles and that it is a long term change in the landscape, recognizing the pole configuration change may or may not yield a significant visual impact. Often times, traffic may be the determinant for cumulative study areas, however, the project's traffic impact is derived primarily by construction, not long term operational impacts and due to relatively modest volumes of vehicles the distribution is quite localized. Information pertaining to approved projects and projects pending approval were obtained from the Planning Department websites of the County of Los Angeles Department of Regional Planning, the city of Los Angeles, the city of Santa Clarita, the California Public Utilities Commission, Caltrans, and Southern California Edison. Table 4.17-1 summarizes the identified development projects within the 5-mile radius of the Proposed Project site. Figure 4.17-1 depicts the locations of those identified development projects in Table 4.17-1, and labels each project with the corresponding number found in the left-most column of Table 4.17-1.

Table 4.17-1 Projects Proposed in the Vicinity of the Proposed Project

Number	Project Name	Type of Project	Location	Status
City of Santa Clarita				
1	Downtown Newhall Specific Plan	20-Block Downtown Area of New Development and Revitalization of Existing Buildings 1,092 New Residential Units and nearly 1-million square feet (SF) of New Commercial Space	Approximately midway between the Golden State Freeway (I-5) and the Antelope Valley Freeway (CA 14), about 35 miles north of Downtown Los Angeles.	Final EIR, Statement of Overriding Conditions and a Mitigation Monitoring and Reporting Program Certified and Specific Plan Adopted on December 5, 2005
2	North Newhall Specific Plan	213 Acres 1,000 New Residential Units, 1-million SF of New Retail and Office Space, Infrastructure Improvements	Downtown Newhall	Draft EIR In Preparation
3	South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone	595 Acres for Residential Units	Located North and immediately adjacent and along the I-5 Freeway, south of the Calgrove Boulevard Exit.	Currently Under Review
4	Gate King Industrial Park	Subdivide 584-Acre Site into 60 lots for industrial/business park (4.45 million SF), water tanks, and permanent open space (170.1 acres development)	Located just Northwest of the I-5 and Antelope Valley (CA-14) Freeways.	Final EIR Available
5	Placerita Canyon Sewer Backbone	2.3 linear miles of mainline and lateral sewer line and appurtenances (5 Alternative Alignments)	Approximately 2 miles East of the I-5 Lyons Ave.	Final EIR Available

Number	Project Name	Type of Project	Location	Status
County of Los Angeles				
6	Tract Number PM060792	533.8 Acres – Merges 15 lots into 1 lot	Santa Clarita Valley, Las Lomas	Date Received by Department of Regional Planning (DRP) May 4, 2004 (Pending – On Hold)
7	Tract Number TR53653	186 Units on 231.42 Acres	(Western Pacific Housing)	Date Received by DRP July 10, 2006 (Pending – On Hold)
8	BFI Sunshine Canyon Landfill	Landfill expansion to increase permitted acreage from 246 acres to 375 acres	14747 San Fernando Road, Sylmar	Environmental Documentation In Preparation
9	Tract Number TR50242	8 Units on 19.47 Acres	Santa Clarita Valley	Date Received by DRP July 23, 2000 (Pending – On Hold)
10	Tract Number TR52905	37 Units on 94.44 Acres	Santa Clarita Valley	Date Received by DRP April 4, 2004 (Pending – On Hold)
11	Tract Number TR52796	102 Units on 230.44 Acres	Santa Clarita Valley, Pico Canyon	Date Received by DRP August 30, 2004 (Pending – On Hold)
City of Los Angeles				
12	ENV-2007-3572-MND (ZA-2007-03571-CU)	Construction / Installation of a new Wireless Telecommunications Facility	12211 North High View Al., Porter Ranch	Conditional Use Approved (12-19-07)
13	TT-60913-M1	Tentative Tract Map for additional 9 Lots for the construction of 165-Unit Residential Condo on 136 Acres	16410 North Nicklaus Drive, Sylmar	DAA Approved with Conditions (2-29-08)
14	ENV-2008-5060-ND (ZA-2008-5059-CUW)	Wireless Telecommunication Facility with Monopine	11801 North Highwater Road	Accepted for Review (1-20-09)
15	ENV-2008-3312-MND (ZA-2008-3311-ZV)	Zone Variance to permit surface parking area	11336 Corbin Ave.	Accepted for Review (9-5-08)
16	ENV-2006-5624-EAF Granada Hills-Knollwood New Community Plan (CPC-2006-5569-CPU) (CPC-2006-5569-CPU-M1)	EAF – Environmental Assessment NOP of EIR Sylmar Community Plan Update	Granada Hills-Knollwood Community Planning Area	NOP Released (2-13-2008) Environmental Documentation in Preparation
17	ENV-2008-570-MND (TT-69616)	Residential Subdivision for 5 Lots	12130 North Nugent Drive	Hearing Date (12-18-08)

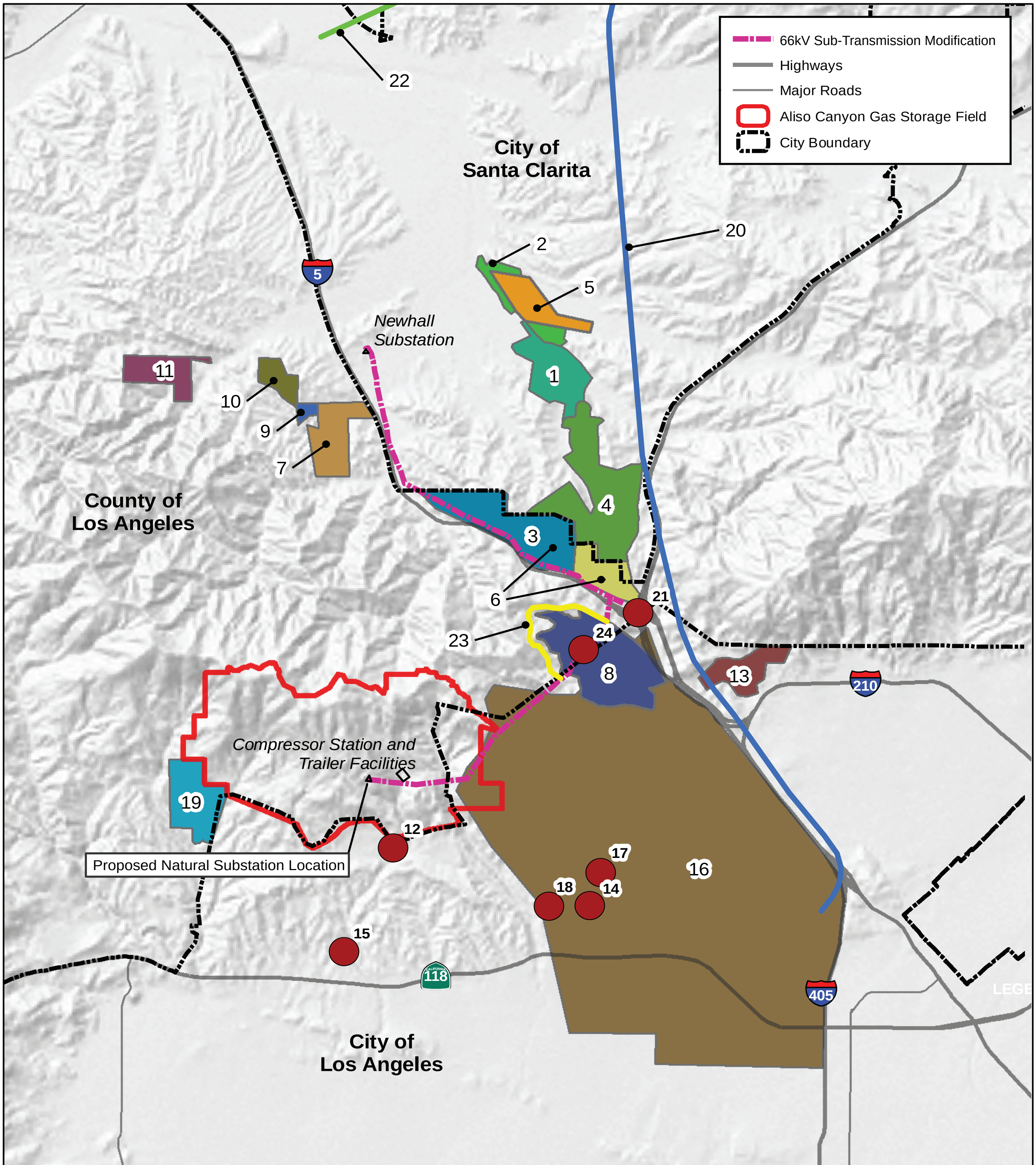
Number	Project Name	Type of Project	Location	Status
18	ENV-2007-5388-MND (APCNV-2007-5387-ZC)	A Four-Lot Preliminary Parcel Map	17891 West Ridgeway Road	Publication Date (5-15-2008)
19	Hidden Creeks Estates ENV-2005-6657-EIR	Annexation of 285-acres into the City of Los Angeles, develop 158 acres into 188 single-family residential lots, with 15.5-acre public park, a 15.8-acre equestrian facility, and 127 acres of preserved open space	Immediately west of Porter Ranch community in northwestern Los Angeles County at the foothills of the Santa Susana Mountains	Draft EIR available for Public Review. Project currently on hold.
20	The City of Los Angeles Department of Water and Power's Barren Ridge Renewable Transmission Project (BRRTP)	Construction of a 230 kV transmission line from existing Barren Ridge Switching Station to Haskell Canyon, addition of a 230 kV circuit from Haskell Canyon to Castaic Power Plant, upgrade of existing Owen Gorge – Rinaldi 230 kV Trasmission Line, and construction of a new electrical substation within Haskell Canyon.	Spanning a total of 75 miles from the Mojave Desert, south to the San Fernando Valley	Draft EIR/EIS In Preparation
Caltrans				
21	I-5/SR-14 HOV Lane Connecter	Elevated two-lane HOV lane connecter at Golden State Freeway (I-5) and Antelope Valley Freeway (SR-14)	The I-5 and SR-14 Interchange	Construction is currently 30% complete; Anticipated project completion date is Fall 2012
Southern California Edison				
22	Antelope-Pardee 500-kV Transmission Line Project[1] (Application No. 04-12-007)	Construction of a new 500-kilovolt (kV) transmission line from the Antelope Substation near Lancaster to the Pardee Substation in the City of Santa Clarita.	Portions of project are in the Santa Clarita Valley	Certificate of Public Convenience and Necessity approved and Final EIR/EIS certified by the CPUC on 03-01-2007 (Decision No. 07-03-012) USDA Forest Service Record of Decision issued 08-23-07. Project is currently under construction.
23	BFI Sunshine Canyon	Relocation of an existing 66	Sunshine Canyon	SCE will file a Permit to

Number	Project Name	Type of Project	Location	Status
	Landfill Subtransmission Line Relocation	kV Subtransmission Line to accommodate the future expansion of the Sunshine Canyon Landfill. Existing line running through the center of the landfill to be relocated to the north and west along the landfill's permitted limits.	Landfill, located at 14747 San Fernando Road, Sylmar	Construct application along with environmental documentation at the CPUC by 2010 to seek approval for the project in anticipation of construction in 2011.
24	BFI Sunshine Canyon Landfill Renewable Energy Generator Interconnection Project	Interconnection of a gas turbine electrical generation facility, requiring construction of a 66 kV substation which will loop into existing Chatsworth-Macneil-Newhall-San Fernando 66 kV Subtransmission Line	Sunshine Canyon Landfill, located at 14747 San Fernando Road, Sylmar	SCE is currently performing a Facilities Study to confirm the interconnection facilities required for the project.
25	Gavin Relocation Project*	SCE has an existing infrastructure project that proposes to rebuild the Big Rock 12 kV distribution line served out of Chatsworth Substation. Part of this existing distribution line traverses the SoCalGas Aliso Canyon facility. SCE will need to acquire new easements from SoCalGas to complete the construction of this project. The Big Rock 12 kV exits Chatsworth Substation to the East on F street where it will traverse Black Canyon Road. The distribution line will then follow an existing underground route on North American Road, where the distribution line will then rise overhead on Box Canyon Road to Santa Susana Pass Road crossing the 118 freeway near Iverson Road. The distribution line will head North along Browns Canyon Road and enters the SoCalGas Aliso Canyon Facility along Oak Mountain Way. The distribution line is being rebuilt as part of SCE's infrastructure replacement program, and will improve reliability to the customers served in this area. SCE will also be building a new tie to an adjacent distribution line to improve reliability and operational flexibility. In association with this rebuild, SCE will also be installing fiber optics on the same distribution structures. The fiber optics will terminate at Natural Substation which will improve the SCE telecommunications network between SCE substations, improving reliability and enhancing protective relaying between substations.		

Source: Los Angeles County Department of Regional Planning; City of Los Angeles Department of City Planning; and City of Santa Clarita Community Development Department, 2009, California Public Utilities Commission, Caltrans, Southern California Edison.

[1] The Antelope-Pardee 500-kV Transmission Line Project is included as a cumulative project for purposes of disclosure. However, as cumulative impacts would not be substantive because of its distance from the Proposed Project, this project is not analyzed in the resource categories, below.

*Note: As mentioned in Chapter 3.0 of this PEA, SCE has indicated that the SCE Gavin circuit would not be able to meet the future energy requirements of the Proposed Project. The eventual relocation of this Gavin circuit is a future SCE project. It should be noted that SoCalGas will obtain any authorization under the Public Utilities Code for the required easement to implement this future project.



Map Location

Scale 1 : 95040
1 inch = 1.5 miles

0 1.5 3 Miles

Aliso Canyon PEA

Figure 4.17-1
Cumulative Projects

Project: 06205-134
Date: September 2009

A cumulative impact is created as a result of the combination of the project evaluated with other projects causing related impacts. Impacts which do not result in part from the project evaluated are not discussed in this cumulative impact analysis (CEQA Guidelines Section 15130 (a) (1)). As such, to facilitate the discussion of cumulative impacts that could result from implementation of the Proposed Project, each resource category evaluated in this PEA that was determined to have a discernible impact is addressed in this cumulative impacts analysis. Incremental impacts from the Proposed Project that may have been considered adverse yet not significant in this PEA, if when added to the cumulative analyses are found to reach a significance threshold would be considered cumulatively significant.

CEQA Guidelines section 15355 defines the term “cumulative impacts” as:

> [T]wo or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Section 15130 of the CEQA Guidelines provides guidance on how to discuss cumulative impacts under CEQA. Section 15130 allows lead agencies to analyze cumulative impacts using one of two approaches: compiling a list of past, present, and probable future projects, or summarizing projections from a planning document. In analyzing the cumulative impacts of a project, the CEQA document must discuss not only approved projects under construction and approved related projects not yet under construction, but also unapproved projects currently under environmental review with related impacts or which result in significant cumulative impacts. The analysis is not limited to projects under review by the CPUC, but also other relevant public agencies, using reasonable efforts to discover, disclose, and discuss the other related projects.

The analysis of cumulative effects is based on two determinations: Is the combined impact of this project and other projects significant? Is the project’s incremental effect cumulatively considerable? When a cumulative impact is not significant, or that the project’s incremental effect is not cumulatively considerable, the basis for that determination is described (CEQA Guidelines 15130(a) (2) and (3)). Resource categories determined to have “no impact” as a result of the Proposed Project include Agriculture, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities and Services. Resource categories analyzed for cumulative impacts are Aesthetics, Air Quality, Biological Resources, Cultural Resources, Geology, Soils, and Seismicity, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Transportation and Traffic. The environmental parameters discussed address the significance of other projects in the cumulative study area such as included in Table 4.17-2 or otherwise pending their geographic coverage. In addition, the discussion will provide some conclusion as to how the Proposed Project’s impacts contribute in some measurable degree to a cumulatively considerable impact. A cumulatively considerable impact would exceed the significance threshold.

4.17.3 Analysis of Cumulative Impacts

The following sections discuss the cumulative impacts of each environmental resource category that was determined to have a project-related impact of “less than significant”, “less than significant with mitigation” or “significant”. Table 4.17-2 provides a general summary of impacts and related select mitigation measures of the identified cumulative projects discussed in Table 4.17-1. The purpose of the summary is to provide information about the projects and their relative cumulative impact contribution to environmental resources. The cumulative project summaries presented in Table 4.17-2 are derived from available environmental documentation. It should be noted that a number of the projects listed in Table 4.17-1 are on hold or are in the process of compiling environmental documentation, and therefore cannot be included in Table 4.17-2 due to the absence of information.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
AESTHETICS	
Gate King Industrial Park (City of Santa Clarita)	
The proposed project would alter scenic views from public viewing locations and alter City-designated Primary and Secondary ridgelines. These impacts were found to be significant and unavoidable. The proposed project would produce new sources of light and glare that would extend the area of daytime glare and night light across the currently vacant property, which would alter the nighttime sky. These impacts were found to be significant, but mitigable.	The proposed water tanks shall be fully-screened from public view with landscape material. A lighting plan shall be developed to reduce excessive brightness and glare and directs light pools downward and shielded from adjacent areas. The lighting plan also includes designs on light fixtures to reduce glare and spill-over.
ENV-2007-3572-MND (ZA-2007-03571-CU) (City of Los Angeles)	
The 55-foot pole height was requested to provide for co-location on the monopine. The applicant has proposed the location of the antennae at the top of the monopine, however this location does not provide for sufficient coverage of the antennae with "pine" branches.	Lower the location of the antennas by 2 feet to permit adequate screening of the antennae by "branches."
Hidden Creeks Estates (City of Los Angeles)	
Implementation of the proposed project would affect the aesthetic character of the project site. The removal of protected trees due to grading activity would constitute a significant impact.	Implementation of the Tree Replacement Program, would reduce aesthetic impacts to a less than significant level.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Project infrastructure would alter the visual quality of landscape views, or the scenic integrity of views, from a number of locations. The project would also create a new source of substantial glare that would alter daytime views in the area as well as conflict with adopted visual quality policies and objectives contained in local and specialized plans. This impacts would be considered significant and unavoidable.	Use of Tubular Steel Poles. Construction, operation, and maintenance within existing access roads. Disposal of cleared vegetation and excavated materials. Treatment of surfaces with appropriate colors, finishes, and textures.
AIR QUALITY	
Downtown Newhall Specific Plan (City of Santa Clarita)	
Project parking structures may create conditions conducive to pollutant buildup, including carbon monoxide (CO). Impacts were determined to be less than significant with mitigation. Where residential is located above commercial, odors from commercial uses may pose a nuisance pursuant to Rule 402. Impact was determined to be less than significant with mitigation. Increased traffic generated at project build-out will increase levels of toxic air contaminants in planning area. Development will also increase number of sensitive receptors exposed to emissions from trains idling. Impact was determined to be less than significant with mitigation. Continued growth in the City, as foreseen under the General Plan, would contribute to existing exceedances of air quality standards. This cumulative impact was found to be significant and unavoidable. Construction activities will result in dust/equipment emissions. This impact was found to be significant and unavoidable. Cumulative: Demolition/construction of several structures in the project area at the same time. Air quality impacts could result. Impact is significant, but mitigable.	Parking structures will be open on three sides or have mechanical ventilation and will be designed to avoid the creation of CO hotspots. An Air Toxins Control Plan with standards which regulate air toxins and control locomotive idling emissions will be prepared.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone (City of Santa Clarita)	
There is a potential for violation of construction-related air quality standards and to contribute substantially to an existing or projected air quality violation depending upon the amount of grading. There would be no potential for violation of operational air quality standards or to contribute substantially to an existing or projected air quality violation as result of the operation of potential future development.	An air quality analysis to determine the potential for air quality impacts prior to issuance of any approvals or permits will be required. The development proposal shall not be approved unless it can be demonstrated that all construction air quality impacts can be mitigated to a level which is less than significant.
Gate King Industrial Park (City of Santa Clarita)	
Construction activity associated with the proposed project would result in the emission of air pollutants, including fugitive dust. Because emissions would exceed SCAQMD significance thresholds, these impacts are considered significant and unavoidable. Operational emissions associated primarily with project-generated traffic would exceed SCAQMD significance thresholds for ROG and NOx. These impacts are considered significant and unavoidable.	Fugitive Dust Control measures will be implemented for the project (i.e., water trucks, stockpiled soils, vehicle speeds, grading restrictions when wind gusts exceed 25 mph or 20 mph). General Dust Control measures will be implemented for the project. Ozone Precursor Control measures will be implemented for the project. Energy efficient windows will be installed and parking lots will be designed to accommodate electric vehicle charging stations.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
There is a potential for violation of construction-related air quality standards and to contribute substantially to an existing or projected air quality violation depending upon the amount of grading. There would be no potential for violation of operational air quality standards or to contribute substantially to an existing or projected air quality violation as result of the operation of potential future development. Although no significant impacts to air quality have been identified, the following mitigation measures are required to minimize PM_{10} emissions.	An air quality analysis to determine the potential for air quality impacts prior to issuance of any approvals or permits will be required. The development proposal shall not be approved unless it can be demonstrated that all construction air quality impacts can be mitigated to a level which is less than significant. General mitigation measures to reduce impacts to air quality will be implemented for the proposed project.
Hidden Creeks Estates (City of Los Angeles)	
Emissions generated during all phases of project construction are expected to exceed the South Coast Air Quality Management District threshold for NOx. During grading, thresholds related to VOC, PM10 and PM2.5 are also anticipated to be exceeded.	Although the recommended mitigation measures (e.g., a Construction Traffic Emission Management Plan, etc.) would reduce the magnitude of construction emissions, no feasible mitigation exists that would reduce all of these emissions to below the SCAQMD's recommended thresholds of significance. The project's construction-related emission of VOC, NOx, PM10, and PM2.5 are considered significant and unavoidable.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Emissions generated during all phases of project construction are expected to exceed the South Coast Air Quality Management District (SCAQMD) thresholds and expose. This is a significant and unavoidable impact.	Although the recommended mitigation measures (e.g., a Construction Traffic Emission Management Plan, etc.) would reduce the magnitude of construction emissions, no feasible mitigation exists that would reduce all of these emissions to below the SCAQMD's recommended thresholds of significance.
BIOLOGICAL RESOURCES	
Downtown Newhall Specific Plan (City of Santa Clarita)	
Project bridge construction would result in the loss of native vegetation, loss of habitat and may adversely affect sensitive species. Impacts were determined to be less than significant with mitigation. Project bridge security lighting may illuminate the streambed and adversely affect wildlife movement. Impacts were determined to be less than significant with mitigation. Indirect impacts to plant communities and wildlife may result from human presence. Impacts were determined to be less than significant with mitigation. Cumulative projects could result in habitat loss for wildlife, contribute to the fragmentation of the City, impact surrounding ecosystems, and incrementally degrade habitat quality. Impacts were determined to be less than significant with mitigation.	Riparian habitats disturbed by construction shall be replaced by creating riparian habitats of similar functions and values and at least 1:1 replacement ratios, as well as incorporate a SWPPP. In-season surveys will be conducted for special-status species. Jurisdictional delineation of wetlands and floodways will be performed. Human access to revegetation and bank restoration areas shall be prohibited and sensitive areas shall be well marked with signage and fencing. Erosion control measures designed into bank restoration/bridge design will be implemented. Fire setbacks and buffers shall be established and planted to protect surrounding wildlife and habitat from development. Lighting of the multi-modal bridge shall be designed to minimize increased light levels in the surrounding riparian environment.
South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone (City of Santa Clarita)	
Depending on the design and location of future development within the project area, the project may have an adverse effect on: candidate, sensitive, or special-status species; riparian habitat or other sensitive natural community; Federally protected wetlands; riparian habitat; and plant or animal species listed as endangered on such Federal and/or State lists.	A biological resource survey will be prepared. No development proposal shall be approved unless it can be demonstrated that biological resource impacts can be avoided through design modifications or mitigated to a level which is less than significant.
Gate King Industrial Park (City of Santa Clarita)	
Permanent loss, and indirect degradation and fragmentation of several "common" habitat types on-site, including mixed chaparral, Riversidean sage	Native species will be used in landscaping within fire clearance zones and hand-thinning of vegetation will be performed.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
scrub, and annual grassland habitats. This impact was found to be significant and unavoidable. Direct loss of special-status plants identified as List 1B or 4 species by the California Native Plant Society. This impact was found to be significant, but mitigable. Potentially affect the San Fernando Valley spineflower, if present on-site. This impact was found to be significant, but mitigable. Remove up to 1,100 healthy oak trees and 709 dead or fire damaged oaks, and could indirectly disturb an estimated 551 individual oak trees. An estimated 69 acres, or approximately 34 percent, of the oak woodland/ forest habitat onsite would be affected. These impacts were found to be significant and unavoidable. Cause direct and indirect impacts to CDFG and USACE jurisdictional drainages on-site. This impact was found to be significant, but mitigable. Disrupt wildlife movement corridors through the project area and between the open space areas associated with the San Gabriel and Santa Susana Mountains. This impact was found to be significant and unavoidable. Cause the direct loss of special-status wildlife through conversion of on-site habitats to developed areas. Indirect impacts on special-status wildlife species could occur through the habitat fragmentation and degradation because of the introduction of non-native plants. This impact was found to be significant, but mitigable.	Graded road areas on-site shall be landscaped and shall be approved by a qualified biologist or landscape architect and shall utilize native species. Focused surveys will be performed for slender and Plummer's mariposa lilies to determine the presence or absence of these plants. If found, a special-status plant restoration plan will be provided. Surveys for San Fernando Valley spineflower will be conducted. If found, a management plan shall be prepared per the California Department of Fish and Game, and the USFWS. For oak trees that are affected, an oak tree mitigation program shall be developed pursuant to the City's oak tree preservation ordinance. The proposed open space wilderness area and any other wildlife/corridor easement areas and/or fee transfers per previous City agreements shall be deeded and/or secured with the City. Compliance with the requirements of the appropriate USACE, CDFG, and RWQCB permits, and implementation of any mitigation measures contained therein, would offset the loss of waters of the United States and waters of the State. A NPDES permit is required for development of the proposed project. As a result Best Management Practices (BMPs) would be required to minimize impacts to water quality and quantity both onsite and offsite during construction. Wildlife guzzlers will be constructed. Low-light design features shall be implemented. A nesting bird survey, including raptors, will be performed. Also, a sensitive species survey will be performed for all special-status species.
Hidden Creeks Estates (City of Los Angeles)	
Construction would result in the loss of special-status bird and other species and the direct removal of both federal and state jurisdictional wetland resources. Construction and operation of the project would result in an increase in non-native plant and human and domestic animal disturbance of native vegetation and wetland and jurisdictional areas. Impacts would occur to 555 protected trees as well as impacts to Mixed Willow Riparian Woodland. These impacts were found to be mitigable.	Focused surveys and pre-construction nesting surveys will be conducted. Creation/purchase of ACOE "waters" at a minimum ratio of 2:1 Creation/purchase of CDFG "waters" at a minimum ratio of 2:1 A Public Awareness Program will be implemented On-site revegetation of Mixed Willow Riparian Woodland at a minimum 2:1 ratio. A Tree Replacement Program and a Tree Preservation Program will be implemented.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
The project would cause temporary loss or permanent loss of native vegetation, oak trees, Los Angeles County oak tree ordinance, and also introduce non-native and invasive plant species. These impacts are considered to be less than significant with mitigation. The project would result in loss of foraging habitat for wildlife, including raptors. This impact is considered to be less than significant with mitigation. The project would also result in the loss of nesting birds, including special-status birds; listed plant species; listed special-status amphibian species (arroyo toad, California red-legged frog); listed special-status reptile species; listed raptor species; listed riparian bird species; coastal California gnatcatchers; aquatic special-status reptile species; burrowing owls; American badger; special-status rodent species; The project would result in transmission line collisions by listed and special-status bird species. This impact is considered to be less than significant with mitigation.	Restoration and compensation will be provided for impacts to native plant communities and no activities will occur in riparian conservation areas. Coast live oak trees will be restored. Weed control measures and permanent closure and revegetation of construction roads will occur. The following mitigation for impacts to plant and wildlife loss is proposed: pre-construction surveys and monitoring for breeding birds; conduct surveys for listed and sensitive plant species; conduct surveys for sensitive amphibians and reptiles; conduct focused surveys for arroyo toad, California red-legged frog, coastal California gnatcatcher; implement seasonal restrictions for work within drainages; relocate individual burrowing owls during the non-breeding season; passive relocation of badgers during the non-breeding season; implement a Fugitive Dust Control Plan; and avoidance of rodent burrow areas. Collision-reducing techniques will be utilized.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
Coastal sage scrub will be impacted (0.02-acre temporarily and 0.20-acre permanently). Impacts were determined to be less than significant with mitigation. Increased human activity, vibration, and noise could displace bird species. Short-term impacts to loggerhead shrike and rufous-crowned sparrow breeding behavior could occur. Impacts were determined to be less than significant with mitigation. Suitable habitat for arroyo toad exists in the project area. Impacts were determined to be less than significant with mitigation. If trenching is used to install the pipeline at Placerita Creek, changes in water flow could result in increased turbidity and alter channel substrate composition. This could impact critical habitat for southern steelhead in Placerita Creek or in the Santa Clara River. A minimum of 0.02-acre of temporary impacts to jurisdictional resources would cross Placerita Creek and its tributaries if trenching was to occur. Impacts were determined to be less than significant with mitigation. The proposed project could result in scouring in Placerita Creek upstream of the bridge in a 50-year storm event. If the sewer line became exposed during a storm event, it could impact rates and patterns of streambed erosion and could lead to pipeline rupture. Impacts were determined to be less than significant with mitigation. Oak trees (some are heritage oaks) would be encroached during construction of the proposed project. Impacts were determined to be less than significant with mitigation.	Coastal sage scrub disturbed by the project will be restored on a 1:1 basis. A restoration plan and long-term monitoring plan will be developed. Pre-construction surveys shall be performed prior to any vegetation clearing for breeding birds and, if found; the CDFG will be consulted. Construction activities on or under the bed or banks of Placerita Creek shall not occur within the breeding season of arroyo toad. All channels altered by construction activities shall be restored to their pre-construction condition. Jack and bore method will be used to install the pipeline under Placerita Creek to avoid impacts to southern steelhead and 0.02- acre of jurisdictional resources. Jurisdictional permits will be acquired. The sewer line at the creek crossing susceptible to scouring during a 50-year storm event will have a minimum design cover of 8 feet. All construction shall be performed in accordance with the LADPW design criteria, Standard Specifications for Public Works Inspection, and other industry standard pipeline design techniques. All work performed shall be in accordance with applicable ordinances, permits, and procedures regarding oak trees. The City's Oak Tree Specialist will be consulted. Other general oak tree protection mitigation will be implemented for the proposed project.
CULTURAL RESOURCES	
South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone (City of Santa Clarita)	
The proposed project would not disturb any known archaeological resources; however, site development has the potential to disturb as-yet undetected areas of prehistoric archaeological significance. Impacts were determined to be less than significant with mitigation.	Appropriate and standard mitigation measures to reduce impacts to less than significant with mitigation shall be incorporated.
Gate King Industrial Park (City of Santa Clarita)	
The proposed project would not disturb any known archaeological resources; however, site development	Fencing will be constructed around and construction contractors shall take precautions to either avoid using

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
has the potential to disturb as-yet undetected areas of prehistoric archaeological significance. Impacts were determined to be less than significant with mitigation. The proposed project would not directly affect any identified significant historic resources. However, possible indirect impacts to the Pioneer Oil Refinery were determined to be less than significant with mitigation.	heavy equipment in the vicinity of the acid tank on the Refinery property or stabilize the tank. The drainage system for the areas surrounding the Refinery shall be designed to prevent any further deposition of materials onto the Refinery site.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
The proposed project would not disturb any known archaeological resources; however, site development has the potential to disturb as-yet undetected areas of prehistoric archaeological significance. Impacts were determined to be less than significant with mitigation.	Appropriate and standard mitigation measures to reduce impacts to less than significant with mitigation shall be incorporated.
Hidden Creeks Estates (City of Los Angeles)	
Excavation of the project site has the potential to disturb unknown resources, which would result in significant impacts; however, implementation of mitigation measures would reduce such impacts to a level that is less than significant.	Appropriate and standard mitigation measures to reduce impacts to less than significant with mitigation shall be incorporated.
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
The proposed project will result in the destruction and potential destruction of all or a portion of several cultural and historical resource sites. These impacts were found to be less than significant with mitigation.	Avoidance of known archaeological sites. Conduct construction monitoring in sensitive areas, and perform data recovery if eligible.
GEOLOGY, SOILS, AND SEISMICITY	
Downtown Newhall Specific Plan (City of Santa Clarita)	
The project pedestrian bridge area may terminate in an area of landslide hazard. Impacts were determined to be less than significant with mitigation. Project development may be exposed to liquefaction hazards. Impacts were determined to be less than significant with mitigation. Cumulative: Continued development will increase the population and number of structures at risk of damage or loss from geologic or seismic hazards. However, impacts were found to be less than significant.	If needed, the project will be amended to require a study for landslide hazards during design of the bridge. Utilities and infrastructure improvements proposed for hazard areas will require site-specific geotechnical study prior to final design and compliance with recommendations.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
Gate King Industrial Park (City of Santa Clarita)	
Impacts relating to ground rupture were determined to be less than significant with mitigation. The project involves grading and development in steeply sloped areas with high landslide potential. Potential impacts relating to landsliding were determined to be less than significant with mitigation. Some on-site soils are potentially expansive. This was determined to be less than significant with mitigation.	The Beacon Fault shall be verified and the location and width of the construction area setback shall be adjusted accordingly. Specific mitigation measures for debris flow hazard may consist of avoidance, debris walls or debris basins. Cut-slopes that will expose bedrock disrupted by the Beacon Fault may also require stability fills. The stability of bedding planes shall be analyzed and presented future anticipated loads from water tanks, buildings or other significant structures will also be incorporated into the stability calculations. Any unsuitable materials underlying the fills shall also be removed. Cut and fill slopes should be seeded or planted with proper ground cover. Subdrains implemented in the main drainage areas to receive fill, and backdrains for buttress fills to protect the proposed fills from groundwater infiltration. Water will be directed to the natural slope drainage devices. Special foundation designs and reinforcement to mitigate expansive material.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
Construction of the sewer line would require trenching and temporary stockpiling of excavated soil. Stockpiled soils have the potential to be transported to locations on or off the proposed project site by wind or water, which could result in increased sedimentation rates. Impacts were determined to be less than significant with mitigation. The proposed project could result in scouring in Placerita Creek upstream of the bridge in a 50-year storm event. If the sewer line became exposed during a storm event, it could impact rates and patterns of streambed erosion and could lead to pipeline rupture. Impacts were determined to be less than significant with mitigation. The total volume of soil excavated would be 10,000 cubic yards or greater. Impact was determined to be less than significant with mitigation.	Stockpiled soils shall be covered with plastic. Work shall only be performed in the main channel of Placerita Creek during the later part of the dry season. The sewer line at the creek crossing susceptible to scouring during a 50-year storm event will have a minimum design cover of 8 feet. All construction shall be performed in accordance with the LADPW design criteria, Standard Specifications for Public Works Inspection, and other industry standard pipeline design techniques. Suitable excavated soils shall be reused for backfilling the trench. Unsuitable materials shall be disposed off-site according to all applicable regulatory rules and regulations.
Hidden Creeks Estates (City of Los Angeles)	
Potential impacts related to slope instability,	Conformance with all recommendations of the

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
landslides, expansive soils, liquefaction, and seismic-related ground failure. However, proper engineering and conformance with California and Los Angeles Building Codes would reduce impacts to a level that is less than significant.	Preliminary Geologic and Geotechnical Engineering Study and California and Los Angeles Building Codes.
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Excavation and grading of the proposed project could cause slope instability. Erosion could be triggered or accelerated by construction or disturbance of landforms. Project structures could be damaged by landslides, liquefaction, settlement, lateral spreading, and/or surface cracking resulting from seismic events and also by strong ground shaking. Buried tower and substation foundations could be damaged by corrosive soils. Tower and substation foundations could be damaged by expansive or collapsible soils. Transmission line structures could be damaged by landslides, earth flows, or debris slides. These impacts were found to be less than significant with mitigation. Transmission lines have the potential to be damanged by surface fault ruptures at crossings of active faults. This impact was found to be less than significant with mitigation. Excavation for transmission line structures could damage unique or significant fossils. This impact was found to be less than significant with mitigation.	Measures include protection against slope instability; minimization of soil erosion; geotechnical investigations for liquefaction, slope instability, corrosive soils, problematic soils, and landslides; reduce effects of ground shaking; Structures within active fault zones will be minimized. Protection of paleontological resources is proposed.
HAZARDS AND HAZARDOUS MATERIALS	
South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone (City of Santa Clarita)	
May expose people or structures to a significant risk of loss, injury or death involving wildland fires.	No development proposal shall be approved unless it can be demonstrated that fire hazard impacts are less than significant, can be avoided through design modifications or mitigated to a level which is less than significant. Any development project located within the fire zone portion of the project area shall be designed to incorporate fire prevention and safety measures. A fuel modification plan shall be required for all hillside plans that abut natural open space or which are within the fire zone portion of the project area.
Gate King Industrial Park (City of Santa Clarita)	
Several areas on-site potentially have soil and/or groundwater contamination that could pose a risk to	A sampling program will be implemented prior to issuance of grading permits for areas suspected of

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
human health and safety. Impacts were found to be less than significant with mitigation. Disturbance of oil and gas lines on-site during site grading could potentially result in hazardous conditions for site workers. Implementation of appropriate safety precautions would reduce such impacts to less than significant with mitigation. The project would introduce new industrial park development in the vicinity of the rail line along Pine Street. Although this would incrementally increase the potential for safety conflicts with rail activity, compliance with standard safety requirements would reduce such impacts to less than significant.	being contaminated. If contamination exceeding levels is found, appropriate remediation shall be undertaken. All existing debris and trash on-site and in Newhall Creek will be removed and properly disposed off-site. Pipeline operators shall be notified in advance of any grading activity in the vicinity of an oil or gas pipeline.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
Construction equipment would use diesel fuels and spillage of large amounts of fuels could generate possibly significant hazards to human health and the environment. Operational impacts could result if the pipeline was to rupture and discharge raw sewage into Placerita Creek. Earthquakes and scouring could cause pipeline rupture.	All construction equipment shall be maintained and repaired at least 500 feet from Placerita Creek. Refueling will occur on paved areas and require spill containment material around the equipment. The sewer line at the creek crossing susceptible to scouring during a 50-year storm event will have a minimum design cover of 8 feet. All construction shall be performed in accordance with the LADPW design criteria, Standard Specifications for Public Works Inspection, and other industry standard pipeline design techniques.
Hidden Creeks Estates (City of Los Angeles)	
Project site is located within a high fire danger area; however, impacts were found to be less than significant with mitigation.	Project design features to minimize risk of fire danger; designation of accessible access and evacuation routes; coordination with Los Angeles Fire Department; and annual reporting to the Fire Marshall regarding compliance with fuel management zones.
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Soil or groundwater contamination could result due to improper handling and/or storage of hazardous materials during construction activities. The project could result in encountering known and unknown pre-existing soil or groundwater contaminations. Hazardous materials could be released during operation at substations and transmission line maintenance. The project would cause radio or television interference and create induced currents and	The following mitigation measures have been proposed: implement and Environmental Training and Monitoring Program, Hazardous Substance Control and Emergency Response Plan, proper disposal of construction waste, install emergency spill supplies and equipment, conduct a Phase II investigation, observe all exposed soil, and ensure documentation of compliance. Also, limiting the conductor surface electric gradient, document and resolve electronic interference

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
shock hazards in joint-use corridors. These impacts were found to be less than significant with mitigation.	complains, and determine proper grounding measures are proposed.
HYDROLOGY AND WATER QUALITY	
Downtown Newhall Specific Plan (City of Santa Clarita)	
Development within a 100-year flood hazard area. Impacts were found to be less than significant with mitigation. Alter existing drainage patterns. Impacts were found to be less than significant with mitigation. Disturb soils and pose a risk of releasing hazardous materials. Impacts were found to be less than significant with mitigation. Cumulative: Development will increase impervious surfaces, increasing volume and velocity of runoff and the potential for a reduction in the quality of surface water. Impacts were determined to be less than significant.	Flood prevention measures will be implemented for the project. For property located within the Flood Hazard Area, developers shall provide the City with required documentation, and pay all required fees. Development within designated flood zone will have structures that are elevated at least 1-foot above Flood Hazard Area. A Stormwater Management program will be implemented. Erosion control measures will be required if run-off will impact creeks
Hidden Creeks Estates (City of Los Angeles)	
Both construction and operation would result in significant impacts to surface water quality and groundwater; however, these impacts can be reduced to less than significant levels with implementation of mitigation measures.	A SWPPP will be prepared. Greased buffer strips, infiltration trenches, and drain inserts and other measures will be included into project design. Efficient and drip irrigation lines will be installed.
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Soil erosion and sedimentation caused by construction activities would degrade water quality. Degradation of surface water or groundwater quality would occur from the accidental release of potentially harmful materials during construction activities. Disturbance of existing groundwater resources could occur through project-related excavation activities. Flood and mudflow hazards created through the placement of aboveground structures and flood hazards from placement within a flood hazard area, a flood plain, or a watercourse could occur. These impacts were found to be less than significant with mitigation.	Implementation of erosion and sediment Best Management Practices. Maximum road gradient and surface road treatment will be used. Construction activities will be timed. Dispersion of subsurface drainage from slope construction areas will be used. Side-cast material, right-of-way debris and roadway debris will be controlled. A Groundwater Remediation Plan will be developed. Aboveground structures shall be protected against flood and erosion damage. Dispersion of subsurface drainage from slope construction areas.
Gate King Industrial Park (City of Santa Clarita)	

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
Increase impervious surface and runoff to Newhall Creek, and potential for downstream flooding and stream channel erosion. This impact was found to be less than significant with mitigation. Within the 100-year flood zone. This impact was found to be less than significant with mitigation. With the proposed project, runoff to Newhall Creek could be adversely affected with pollutants such as oil, pesticides, and herbicides. This impact was found to be significant, but mitigable.	The drainage plan for the project shall include post-development designs for detention basins and on-site infiltration. The RCB under Sierra Highway shall be improved to have adequate capacity to accommodate the Capital Flood. On-site drainage facilities for the developed areas shall be designed to convey flood waters. Final design will include provisions for slope protection. Finished floor elevations shall be a minimum of 1 foot above the existing adjacent grade. The applicant shall obtain a revision to the Flood Insurance Rate Map. A SWPPP will be prepared and implemented.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
During the wet season or when water is flowing in Placerita Creek, there is the potential for the project to cause temporary impacts to absorption rates, drainage patterns, and the amount and rate of surface runoff as a result of trenching and soil stockpiling on the proposed project site. Impacts to the biological integrity of Placerita Creek and its tributaries could occur due to the potential for increased sediment load from soil stockpiles or the transport of hazardous materials from construction equipment or maintenance facilities. Impacts were determined to be less than significant with mitigation. The proposed project would be located in areas of special flood hazard (FEMA 100-year flood zone) and construction during the rainy season could expose construction workers to flood hazards. The proposed project could result in scouring in Placerita Creek upstream of the bridge in a 50-year storm event. If the sewer line became exposed during a storm event, it could impact rates and patterns of streambed erosion and could lead to pipeline rupture. Impacts were determined to be less than significant with mitigation. If trenches and soil stockpiles are present while surface water is flowing on the project site, significant impacts to water movement could occur. Impacts were determined to be less than significant with mitigation. Impacts to Placerita Creek and its tributaries could	Stockpiled soils shall be covered with plastic. Work shall only be performed in the main channel of Placerita Creek during the later part of the dry season. The sewer line at the creek crossing susceptible to scouring during a 50-year storm event will have a minimum design cover of 8 feet. All construction shall be performed in accordance with the LADPW design criteria, Standard Specifications for Public Works Inspection, and other industry standard pipeline design techniques. All channels that are altered by construction activities shall be restored to their pre-construction course. All stockpiled soils will be outside the creek bed. All maintenance, repair and refueling shall be conducted on paved areas. Standard spill prevention measures will be implemented. All construction materials and hazardous wastes shall be stored and disposed of properly according to all applicable regulations.

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
occur if hazardous materials associated with equipment maintenance and repair or refueling were entrained in storm water runoff. The project could increase erosion potential of soils during construction due to the presence of stockpiled soil, which could result in sedimentation of Placerita Creek and its tributaries. Impacts were determined to be less than significant with mitigation.	
NOISE	
Downtown Newhall Specific Plan (City of Santa Clarita)	
Noise generated by parking garage activity may adversely impact surrounding uses. Impacts were found to be less than significant with mitigation. Project development near the train station may increase exposure to ground vibration and noise. Impacts were found to be less than significant with mitigation. Implementation of the proposed Specific Plan may increase traffic generated noise from streets on the periphery of Downtown core. This impact was found to be significant and unavoidable. Mixed use projects may expose residential land uses to noise from non-residential uses. Impacts were determined to be less than significant with mitigation. Construction activity would temporarily increase ambient noise. This impact was found to be significant and unavoidable. Cumulative: Project development in the City will continue to increase traffic and traffic-related noise along area roadways. Impacts were determined to be less than significant with mitigation.	Noise insulation features shall be incorporated into the design of commercial buildings surrounding parking garages. A detailed acoustical analysis shall be conducted. Outdoor spaces shall generally be designed so that noise from railroad is attenuated through buildings or other intervening structures. Prior to approval of mixed-use projects involving commercial tenants with nighttime activities City shall ensure that noise compatibility has been addressed. Diesel equipment will have closed hoods, exhaust mufflers, and steel muffling sleeves. Noise barriers around construction will be implemented. Electrical power shall be used to run electrical equipment when feasible. A haul route and staging plan will be designated.
South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone (City of Santa Clarita)	
Depending on the location and design of future development within the project area, may expose persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	No development shall be allowed within 5,000 feet of the I-5 Freeway or 2,500 feet of the CA 14 Freeway within the project area unless it will not result in significant noise impacts.
Gate King Industrial Park (City of Santa Clarita)	
Construction activity would temporarily generate high noise levels on-site. Because noise could exceed	All diesel equipment will have closed engine doors and mufflers. Electrical power will be used to run air

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
thresholds in the City Noise Ordinance, impacts were found to be significant, but mitigable. Daytime operations are not expected to violate the City Noise Ordinance, but noise levels could exceed Noise Ordinance standards for nearby residential uses if on-site truck activity occurs at night. Impacts relating to project operation were found to be significant, but mitigable.	compressors and similar power tools. Noise attenuation techniques will be employed as needed to ensure that noise remains below 80 dBA in commercial/industrial areas and below 65 dBA at residences. Loading dock operations will be oriented away from residential areas. On-site trash pickup services, street and parking lot sweeping, and truck deliveries will be restricted to between the hours of 7:00 AM and 6:00 PM.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
Construction of the proposed project would result in short-term elevated noise levels. Single family residences and Master's College could perceive this noise. Impacts are determined to be less than significant with mitigation.	Construction hours will be limited and no construction on Sundays or holidays.
Hidden Creeks Estates (City of Los Angeles)	
Off-site sensitive receptors in the vicinity of the project would experience increased ambient noise during construction. Increased roadway use from construction-related and operation-related traffic would result in the exceedance of noise thresholds for surrounding roadways.	Compliance with the City of Los Angeles Noise Ordinance, implementation of mufflers and other sound reduction equipment, and temporary sound barriers.
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Construction noise levels would violate local standards. Operational corona noise levels at at residences would violate Los Angeles County standards. Noise level increases related to routine inspection and maintenance would violate local standards as well as permanently increase noise levels. These impacts were found to be significant and unavoidable.	Nighttime construction noise restriction in Santa Clarita. Provide advanced notification of construction. Provide shields for stationary construction equipment.
TRANSPORTATION AND TRAFFIC	
Downtown Newhall Specific Plan (City of Santa Clarita)	
Under 2010 Build Alternative, San Fernando/ Railroad intersection would degrade to level-of-service "D" with ICU increase of 0.07. Impacts were found to be less than significant with mitigation. Temporarily closure of Railroad Avenue's outside northbound travel lane in 2010 would impact transit operations. Impacts were found to be less than	A second northbound right-turn lane from San Fernando Road onto Railroad Avenue will be constructed. The northbound Railroad Avenue bus stop will be relocated. The San Fernando/13th intersection's western leg/eastbound approach will be reconfigured. A second northbound right-turn lane from San Fernando Road onto Railroad Avenue will be added. Railroad crossing gate assembly and widen San Fernando Road southerly

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
significant with mitigation. Under 2025 Build scenario, San Fernando/13th degrade to level-of-service “F” with ICU increase of 0.08. Impacts were found to be less than significant with mitigation. Under 2025 Build alternative, San Fernando/Railroad degrade to level-of-service “D” with an ICU increase of 0.20. Impacts were found to be less than significant with mitigation. Under 2025 Build Alternative, Lyons/Railroad degrades to level-of-service “E” with ICU increase of 0.28. This impact was found to be significant and unavoidable. Construction activities will temporarily disturb traffic patterns and access routes. Impacts were found to be less than significant with mitigation.	will be relocated. The lanes on San Fernando Road will be re-striped. The City will design the intersection at the Dockweiler Drive extension to achieve acceptable levels of service. Construction parking to minimize traffic interference will be configured. Temporary traffic controls during all phases of construction activities to maintain traffic flow will be provided. Construction activities that affect traffic flow on the arterial system to off-peak hours to the degree practicable will be scheduled appropriately. A haul route and consolidation of truck deliveries will be established when possible. Dedicated turn lanes for movement of construction trucks and equipment on- and off-site will be provided. A circulation plan shall be required on a project by project basis if vehicle and pedestrian routes and residential areas conflict with construction activities.
South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone (City of Santa Clarita)	
The project may: (1) result in increases to hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); (2) result in any change in emergency access; and (3) create any hazards or barriers for pedestrians or bicyclists.	A traffic study shall be required for any new development within the project area which includes any new proposed roadways, or driveways onto the existing Old Road.
Gate King Industrial Park (City of Santa Clarita)	
The proposed project would generate significant traffic impacts at 13 of 19 study area intersections. These impacts were found to be significant, but mitigable. Significant traffic impacts at 10 of 19 study area intersections under interim year project conditions. These impacts were found to be significant, but mitigable. Installation of traffic signals is warranted at each of the new intersections created by the project as well as at the existing Pine Street/San Fernando Road and SR-14 Southbound ramps/ San Fernando Road intersection. These impacts were found to be significant, but mitigable.	Intersection and roadway improvements will be required in order to maintain acceptable levels of service in the future. In conjunction with project development, traffic signals shall be added at the following intersections: SR-14 SB Ramp and San Fernando Road, Pine Street and San Fernando Road, ‘A’ Street and San Fernando Road, and Sierra Highway and ‘A’ Street Bus stop improvements will be implemented for the proposed project including a park-and-ride lot at the intersection of San Fernando Road and ‘A’ Street.
Placerita Canyon Sewer Backbone (City of Santa Clarita)	
The proposed project would temporarily disrupt existing traffic flow. Construction of the proposed project would disrupt response time to emergency	A Traffic Management Plan will be developed and reviewed by the Director of Public Works or City Traffic

Table 4.17-2 Summary of Impacts for Cumulative Projects by Environmental Parameter

Summary of Impacts for Cumulative Project (Location)	Summary of Mitigation
services to the project area. Impacts were determined to be less than significant with mitigation.	Engineer.
Hidden Creeks Estates (City of Los Angeles)	
Truck traffic and lane closures associated with construction of the project could occur. Significant impact at Mason Avenue and Rinaldi Street during the PM peak hour.	Construction Traffic Management Plan will be implemented. Fair share contribution towards Automated Traffic Surveillance and Control and Adaptive Traffic Control Systems.
Antelope-Pardee 500-kV Transmission Line Project (SCE)	
Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion. Construction traffic would result in congestion on area roadways. Construction activities could temporarily interfere with emergency response. These impacts were found to be mitigable.	Prepare Traffic Control Plans Restrict land closures. Prepare Construction Transportation Plan.
Source: Los Angeles County Department of Regional Planning; City of Los Angeles Department of City Planning; City of Santa Clarita Community Development Department, 2009; and California Public Utilities Commission (2009).	

4.17.3.1 Aesthetics

As discussed in Section 4.1 Aesthetics, implementation of the Proposed Project would result in less-than-significant impacts related to aesthetics. During construction, sensitive viewers could see activities such as removal of vegetation, construction of buildings, pole removal, grading and excavation of pole footings, pole replacement, rehabilitation of dirt roads, as well as the use of various types of construction-related heavy-duty equipment (including the potential use of helicopters). These construction-related visual impacts would be considered adverse. However, because the impacts would be temporary rather than permanent, impacts to scenic vistas, scenic resources, and to the visual character and quality of the site during construction would be considered less than significant. There is a possibility that construction will occur at night, and temporary artificial illumination will be required. However, SCE will implement an APM to orient the lights in a manner to minimize their effect on any nearby sensitive receptors. Because impacts related to nighttime lighting would be rare and with implementation of the above identified APM, light and glare impacts related to construction would be considered less than significant.

In addition, through the use of visual simulations, it was determined that no substantial change to existing views/conditions would occur with either the replacement of existing LSTs with new TSPs along the 66 kV sub-transmission alignment or with the addition of new structures at the Storage Field site. With implementation of the Proposed Project, the relatively minor changes to existing views were determined to result in less than significant impacts to scenic vistas, scenic resources, and to the visual character and quality of the site.

As discussed in Section 4.1, both the County of Los Angeles and the city of Santa Clarita have policies related to the protection of the visual quality of scenic areas, which includes ridgelines. The Gate King Industrial Park project would result in an unavoidable adverse impact to aesthetics. The Gate King Industrial Park would significantly alter scenic views of Santa Clarita-designated Primary and Secondary ridgelines, which was determined to be significant and unavoidable. There is one city of Santa Clarita-designated significant ridgeline within the City's jurisdictional boundary that is crossed by the existing 66 kV sub-transmission alignment. However, implementation of the Proposed Project involves replacing existing LSTs with TSPs and therefore would not substantially alter the existing condition at this location. No substantial alteration or grading of the ridgeline profile would occur, as the only construction work required would be foundation work for the footings of the new TSPs and the rehabilitation of existing access roads. The incremental change in the landscape resulting from the replacement of existing LSTs is not a substantial visual change and is not anticipated to result in exacerbation of the existing views beyond the potential visual impacts of the Gate King Industrial Park. The incremental impacts of the Proposed Project do not create a substantial visual change even when considered within the context of the Gate King Industrial Park.

The Proposed Project aesthetic impacts are not substantial, are not significant, have minimal incremental impact to be measurable towards an aesthetic impact even with the significant adverse impacts from other projects. There are no cumulatively considerable aesthetic impacts. Therefore, cumulative impacts related to aesthetics would be considered less than significant.

4.17.3.2 Air Quality

As discussed in Section 4.3 Air Quality, unmitigated peak daily NO_x emissions from the Proposed Project exceed the SCAQMD CEQA construction NO_x emissions significance threshold of 100 lbs/day. However, the construction-related NOx emissions will be mitigated by purchasing RTCs for every pound of NOx emissions in excess of the threshold. The total amount of NOx RTCs that will need to be purchased will be calculated when the construction schedule and operating conditions are finalized. The Proponent will need to purchase and surrender the required RTCs to the SCAQMD prior to the start of construction. Additionally, the Proponent will also be required to track actual daily emissions during construction according to a Mitigation Monitoring Plan, which will require maintaining records of equipment and vehicle usage.

With implementation of the Proposed Project, the proposed Central Compressor Station replaces the existing natural gas driven jet turbines with electric compressors trains. Thus, the operation of the proposed Central Compressor Station will not include any on-site combustion sources. Further, the proposed Central Compressor Station site operation will not increase the existing on-site employee base; thus, no increase in vehicular emission increases are anticipated. Operation of the Proposed Project provides a benefit to air quality from the decommissioning of the jet turbines at the existing compressor site. In addition, implementation of the Proposed Project would result in a net operational decrease in GHG emissions from the decommissioning of the existing natural gas jet turbines.

It should be noted that cumulative projects identified in Table 4.17-2, specifically the Downtown Newhall Specific Plan, South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone, Gate King Industrial Park, the Placerita Canyon Sewer Backbone, and the Hidden Creeks Estates projects, could potentially result in air quality impacts. Mitigation for the South Santa Clarita Sphere of Influence

Amendment, Annexation and Prezone and the Placerita Canyon Sewer Backbone projects identify air quality analyses to be prepared which demonstrate all construction-related impacts can be mitigated to a less than significant level. The Downtown Newhall Specific Plan and Gate King Industrial Park projects provide mitigation for reducing both construction- and operation-related air quality impacts. However, the findings from the analysis indicate that there will be an avoidable significant impact for particulates during construction phase of the projects. For the Hidden Creek Estates project, there is an unavoidable adverse impact for particulates and NOx.

The Proposed Project does result in short term construction impacts for NOx. The Proposed Project is well below the threshold for particulates. Consequently, the Proposed Project will add a minimum of particulates on a local level. For NOx, the Proposed Project mitigation is based on accessing and utilizing a basin-wide NOx allowance with a declining cap that is approved into the State Implementation Plan (SIP) for attaining the regions air quality goals. Therefore, by offsetting any emissions increase using an existing allowance, the Proposed Project is not causing or contributing to any measurable increase that has not been previously regulated by the local air district (SCAQMD) for the purposes of attainment of ozone ambient air quality standards. As a result, the Proposed Project is not expected to add to a cumulatively considerable impact that would exceed the significance threshold. However, because the Proposed Project would mitigate construction-related air quality impacts and would result in a beneficial operation-related air quality impact, no significant cumulative impacts would occur with implementation of the Proposed Project.

4.17.3.3 Biological Resources

As discussed in Section 4.4 Biological Resources, there is a potential for significant impacts to biological resources, most specifically native habitat. Other biological resource issues such as plant communities, oak tree impacts, riparian/streambeds, wildlife movement and special-status wildlife are anticipated to incur minor or no substantive environmental damage as a result of limited or no encroachment anticipated from the construction limits into the specific habitat. Sensitive aquatic species such as the two-striped garter snake and Coast Range newt are known to occur in Limekiln Canyon Wash, which is in close proximity to the proposed construction within the Storage Field. Because the Proposed Project will not encroach into the drainage and would not result in the removal of riparian vegetation, impacts to these species will likely be less than significant. At the conclusion of the Proposed Project, the percentage of impervious surfaces will be comparable to that of the existing facility. As such, there will be no indirect impacts to sensitive aquatic wildlife resulting from increased runoff from the operation of the facility.

Oak tree impacts will be subject to City and County oak replacement guidelines; providing protection for oaks. For the CNPS 1B.2 Inventory of Rare Plants designated species (Plummer’s mariposa lily and slender mariposa lily) there are a number of plants located within the planning/survey area although most of the plants can be avoided during construction. Although there are four reported locations of Plummer’s mariposa lily and over a 1,000 locations of the slender mariposa lily, the majority of these can be avoided during construction by flagging and fencing the populations, setting up Environmentally Restricted Areas (ERAs) on construction. Plummer's mariposa lily is endemic to California, inhabiting chaparral, sage scrub, woodland, and grassland habitat on coast and inland hillsides from approximately 300 to 1500 feet. This species occurs in the following counties: Ventura, Los Angeles, San Bernardino, Orange, and Riverside. Slender mariposa lily is also endemic to California occurring in chaparral, sage scrub, and grassland habitat on slopes from approximately 360 to 3000 feet in Ventura and Los Angeles Counties.

Both species are threatened primarily by loss of habitat from development, but are also declining due to fire suppression, foot traffic, mining, and recreational activities. The Proposed Project and Gate King Industrial Park will generate cumulative impacts but the impacts of the Proposed Project would not be considered "cumulatively considerable" because of the overall health of the population /distribution characteristics of these species as well as the on-site mitigation measures proposed.

Cumulative projects in the area do contribute to native habitat removal, upland and riparian impacts, rare plant species impacts and wildlife corridor disruption. In particular the Gate King Industrial Project contributes to significant impacts to native plant communities, oak woodland and wildlife movement. All other biological resource impacts for the Gate King Industrial Project, the South Santa Clarita Sphere of Influence Amendment, annexation and Prezone (City of Santa Clarita), Downtown Newhall Specific Plan (City of Santa Clarita) and the Placerita Canyon Sewer Backbone (City of Santa Clarita), Hidden Creeks Estates resulted in less than significant biological resource impacts after mitigation. However, it is important to note that there is substantial mitigation required for these projects and follow on mitigation monitoring and reporting will need to demonstrate performance standards are met in conjunction with the implementation and operation of the various measures.

In terms of the cumulative projects and the significance findings for native plant communities, rare plant species and wildlife movement, it is important to recognize that the Proposed Project does not result in substantive acreage impacts to upland plant communities, such as those that support the Federally threatened California gnatcatcher, and as the majority of these are temporary due to revegetation of the work area. The Proposed Project has little if any impact to oak woodland as well as for wildlife movement. Although there is some potential for the Federally threatened California gnatcatcher to be present, the plant community composition and habitat and the geographic area of the Proposed Project are not ideal to support the species in significant numbers. This coupled with only minimal likely permanent impacts to sage scrub communities is not expected to substantively or significantly impact local individual California gnatcatcher breeding.

In conclusion, the Proposed Project's biological resources impacts are avoided, mitigated or are not significant, and are expected to have only a minimal incremental impact towards a biological resources impact even with the significant adverse impacts from other projects. There are no cumulatively considerable biological resource impacts.

4.17.3.4 Cultural Resources

As discussed in Section 4.5 Cultural Resources, no archaeological resources were identified within the Proposed Project area. The one previously recorded archaeological site was entirely collected. As a result, no further archaeological work would be necessary pursuant to CEQA guidelines and regulations. However, if previously unidentified archaeological resources are unearthed during construction activities, construction would be halted in that area and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. The archaeologist would recommend appropriate measures to record, preserve or recover the resources.

If human remains are encountered during construction or any other phase of development, work in the area of the discovery must be halted in that area and directed away from the discovery. No further disturbance would occur until the County Coroner makes the necessary findings as to origin pursuant to

Public Resources Code 5097.98-99, Health and Safety Code 7050.5. If the remains are determined to be Native American, then the NAHC would be notified within 24 hours as required by Public Resources Code 5097. The NAHC would notify the designated Most Likely Descendants who would provide recommendations for the treatment of the remains within 24 hours.

A low probability of encountering archaeological resources during construction of the Proposed Project exists, and potential impacts from any unknown cultural resources discovered during construction would be avoided with implementation of the identified mitigation measures discussed above. Development of all cumulative projects would not adversely affect any known archaeological resources regionally because of similar mitigation measures or through avoidance, as shown in Table 4.17-2. Therefore, the combined impacts of all other projects and the Proposed Project are less than significant, and there are no cumulatively considerable cultural resource impacts.

It should be noted that SCE identified historic towers along the alignment of the proposed SCE 66 kV sub-transmission modification. The towers are known as “Kern River One” towers manufactured in 1908 using windmill parts of historic significance. In accordance with APM-CR-03, impacts to this potentially historic resource will be minimized through development of a Historic American Engineering Record (HAER), which shall be prepared prior to removal of Kern River One Towers used within the existing SCE 66 kV alignment.

4.17.3.5 Geology, Soils, and Seismicity

As discussed in Section 4.6 Geology, Soils, and Seismicity, the Proposed Project site is located in a seismically active region and there is a potential for significant impacts since active faults in the region are capable of causing damage to the Proposed Project structures and infrastructure that would be located on-site. In addition, there is the potential for soil instability-related impacts such as soil erosion, landslides, and collapse/settlement.

However, proper engineering design and conformance with the geology and soils-related APMs identified for the Proposed Project, including compliance with current building codes (i.e., UBC) as required by the City and County, would reduce all potential geotechnical impacts to a level that is less than significant. It should also be noted that the Proposed Project involves replacing older structures that are more susceptible to seismic events with newer structures.

Geotechnical impacts are considered site-specific; any new development in the region would also be required to be constructed to withstand probable geology and soils-related impacts, and therefore, cumulative projects and their potential impacts listed in Tables 4.17-1 and 4.17-2 would similarly have to comply with current building codes and regulations. Each of the specific projects listed in Tables 4.17-2 under the Geology, Soils and Seismicity title do result in significant adverse impacts for ground rupture, landslides, or expansive soils. However, each of the projects includes their respective engineering design, project design features and mitigation measures to manage the geologic risk and result in no residual unavoidable adverse impacts. Since the geotechnical parameter is required to be addressed by engineering controls, each project is essentially self-mitigating and materially avoids cumulative impacts. As such, with the inclusion of the projects in Table 4.17-2 and the Proposed Project’s geologic impacts included, there are no anticipated cumulatively considerable impacts.

4.17.3.6 Hazards and Hazardous Materials

As discussed in Section 4.7 Hazards and Hazardous Materials, with the exception of vehicle and equipment fuels and transformer oils, the volumes of hazardous materials associated with Proposed Project construction are so small that no significant impacts are expected to occur. Implementation of the required SPCC Plan and HMBP would reduce impacts related to any other type of spill to a level that is considered less than significant. In addition, the management of wastes generated during the construction process would be performed in accordance with Federal, State and local regulations and requirements.

At locations where there is believed to be potential for subsurface soil contamination to occur, a pre-construction investigation will take place to determine whether the soil must be removed and legally disposed off-site. If the soil is contaminated, it will be managed in isolation, separately from clean soils, and stored in compliance with the Proponent's SWPPP and HMBP, such that impacts are considered less than significant.

The height of conductors within the alignment of the proposed 66 kV sub-transmission modification could reach 150 feet, e.g., on spans between I-5 and the proposed Natural substation. Based on this, as part of an APM, SCE will notify and consult with the FAA under regulations found in 14 CFR Part 77 to ensure that wires and elevated structures such as TSPs will not pose a problem to air traffic. The Proposed Project would be required to conform to all adopted safety standards and guidelines for obstructions.

Work associated with placing proposed conductors and poles along the alignment of the existing 66 kV sub-transmission route and at the San Fernando substation will require pulling conductor across roads and/or possibly require a lane closure. In these situations, construction activities would be coordinated with the local jurisdiction. If it becomes necessary to close a thoroughfare, a suitable detour will be provided to ensure there is an emergency access route. Flaggers may briefly hold traffic back while conductor is pulled across a roadway. Impacts would be considered less than significant.

The only potential significant release of material associated with operation of the Proposed Project would be if equipment associated with the proposed Central Compressor Station or the proposed Natural Substation electrical transformers or switches were damaged from a seismic event, fire or other unforeseen incident. Such an event could have the potential to release natural gas or transformer oil. However, the existing SWPPP; SPCC Plan; and HMBP for the Storage Facility will be updated to incorporate the operational changes introduced by proposed Central Compressor Station and other facilities. These plans will reduce potential impacts from hazardous materials handled during operation, such that impacts are considered less than significant.

Regarding fire risk during operation, the Proposed Project would be constructed and maintained in a manner consistent with CPUC GO 95 and CPUC GO 165. Consistent with these and other applicable Federal and State laws, SCE would maintain an area of cleared brush around energized electrical equipment, minimizing the potential for fire where required.

The Gate King Industrial Park and Placerita Canyon Sewer Backbone cumulative projects identified in Table 4.17-2 have the potential to result in similar impacts related to possible hazardous spills and/or unknown soil contamination. However, spill prevention measures and pre-construction soil investigations for those projects would also reduce impacts to less-than-significant levels for those projects. Therefore, no significant cumulative hazards and hazardous materials impacts are anticipated from the Proposed

Project. Since the projects listed in Table 4.17-2 all have addressed their hazards and hazardous materials impacts with preventive measures or pre construction investigations and there are no residual significant impacts identified, the Proposed Project and any minimal increment impact is not expected to result in cumulatively considerable impacts.

4.17.3.7 Hydrology and Water Quality

Due to the placement of facilities and built structures associated with the Proposed Project, the incremental impact to both hydrology and water quality will not add substantive flow or pollutant loads that would result in measurable cumulative impacts. The Proposed Project is not expected to add measurably to the downstream receiving waters in terms of water quality and pollutant loading or due to higher velocities created by increased unmitigated impervious surfaces. Construction activities related to the Proposed Project would include clearing, excavation, stockpiling of materials and other disturbances of the Proposed Project site. All of these activities have the potential to impact water quality and the overall rate of runoff from the Proposed Project site. However, the combined footprint of the project components within the Storage Field including the: proposed Central Compressor Station; proposed SCE Natural Substation, and related transmission infrastructure; and the proposed office trailer and guard house relocation is very small compared to the overall footprint of Limekiln Canyon and therefore would not lead to significant impacts to drainage patterns or erosion during construction of the Proposed Project. The Proposed Project would be subject to a General Permit during construction in which a SWPPP and associated BMPs would be required. Adherence to the required SWPPP and the implementation of standard BMPs during construction would reduce the potential for increased siltation, erosion and hazardous materials spills such that potential impacts would be considered less than significant. In addition, potential impacts related to storm water runoff would be reduced to a level that is less than significant. As with the Proposed Project, cumulative projects in the region would be developed in compliance with existing regulations, and all local and regional plans regulating water quality, including NPDES permits. These measures and regulatory compliance requirements are expected to manage storm water run-off as well.

The projects listed in Table 4.17-2 have various potential environmental impacts including encroachment into the 100-year floodplain, increase of impervious surfaces, water quality impacts, groundwater impacts, stream channel erosion and changes in absorption rates. Each of the potentially significant adverse impacts was determined to be mitigable and less than significant with mitigation in place. It is important to note that there is substantial mitigation required for these projects and follow on mitigation monitoring and reporting will need to demonstrate performance standards are met in conjunction with the implementation and operation of the various measures.

Implementation of regulatory requirements by the other projects coupled with the implementation of the Proposed Project's regulatory requirements will assure that impacts to hydrology and water quality will be less than cumulatively considerable.

4.17.3.8 Noise

Cumulative noise impacts related to construction activities have the potential to occur due to other projects that may be scheduled for construction at the same time as the Project or located in close proximity to the Proposed Project site. The cities of Los Angeles and Santa Clarita limit construction activities through time restrictions and a variance would need to be obtained from either jurisdiction should construction activities plan to occur outside of the allowable timeframes. Los Angeles County also controls construction noise through time restrictions; however, the restrictions are quantified by type and land use. Based on this quantified methodology, it was determined in Section 4.11 Noise, that a Noise Control Plan (NCP) would be implemented during pole replacement within 50 to 100 feet of residential uses within a Los Angeles County, incompliance with the County time restrictions. Implementation of the NCP would reduce cumulative impacts related to construction of the Proposed Project in combination with the other cumulative projects to a level that is less than significant. Construction activities would be temporary in nature and would not result in permanent increases in noise levels.

As discussed in Section 4.11, based on the noise levels predicted for the proposed SCE Natural Substation and proposed Central Compressor Station site, noise levels at the nearest residences would be below 45 dBA L_{eq} at any time and would therefore comply with the Los Angeles City and County noise ordinances. Improvements proposed at the San Fernando Substation would not be substantial and would not increase the noise levels at local sensitive receptors. The alignment of the proposed 66 kV sub-transmission modification would be located within an existing transmission corridor when in proximity to noise sensitive receptors. The noise levels generated by the proposed 66 kV sub-transmission system modification would be similar to the existing 66 kV sub-transmission system. Operation of the transformers at the proposed Natural Substation could produce groundborne vibration, but it would be perceptible only in the immediate vicinity of the transformer pad. Similarly, operation of the proposed Central Compressor Station and associated VFD motors would generate vibration in the immediate vicinity of the equipment. However, due to the distance to the nearest vibration sensitive receiver, vibration levels would attenuate below the level of perception.

Based on the traffic analysis the Proposed Project would not result in an increase in traffic noise levels. As a result, the Proposed Project would not cause a substantial permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project. It is appropriate to note that the traffic along the roadways is forecast with existing and planned projects considered. Consequently, cumulative traffic noise impacts are already incorporated into the analysis, and the percent contribution of traffic on the local network is negligible and not cumulatively considerable. Similar types of noise impacts of each cumulative project would be required to comply with its respective jurisdiction's Municipal Code Noise Ordinance and appropriate mitigation measures, thus reducing impacts to a level that is less than significant. Implementation of the Proposed Project would not result in a cumulatively considerable noise increase when considering other locally adopted or planned projects listed in Table 4.17-2. Potentially significant impacts are temporary and have been mitigated to a less than significant designation during construction activities. The Proposed Project noise exposure does not impact residents, and has a very minimal contribution or institutes a noise control plan for the pole replacement; consequently the incremental impact is minimal to the surrounding community and will not result in a cumulatively considerable noise impact. In addition, permanent noise impacts would not result from the operation of the facility. Therefore no cumulatively considerable noise impacts are anticipated from the Proposed Project.

4.17.3.9 Transportation and Traffic

It is appropriate to note that the traffic analysis for the Proposed Project already considers cumulative growth through the use of the city of Santa Clarita's accepted ambient growth (3 percent) model, as well as additional consideration for future traffic from planned and proposed projects (Table 4.17-2) in the vicinity of the Proposed Project site.

As discussed in Section 4.15 Transportation and Traffic, the Proposed Project is expected to shuttle approximately 150 construction workers from an off-site parking area to the site. The increase in traffic associated with these additional trips has been evaluated at the intersection of Tampa Avenue/Sesnon Boulevard. Based on the intersection operations, this location is anticipated to operate at acceptable service levels with the additional trips. In addition, there would be approximately 1 to 2 delivery truck trips and 5 to 10 construction vehicle trips visiting the Proposed Project site on a daily basis. Based on the intersection operations, the intersection of Tampa Avenue/Sesnon Boulevard is anticipated to operate at acceptable service levels with the additional trips. A temporary lane closure on Wiley Canyon Road may be required as part of construction activities. However, an APM to prepare and utilize a traffic control plan would be implemented. Based on the level of service analysis, the intersection of Wiley Canyon Road/Lyons Avenue is expected to operate at acceptable levels in conjunction with the lane closure. Parking during construction of SoCalGas's Proposed Project components, including construction of the proposed Central Compressor Station and proposed PPL, and proposed relocation of the trailer facility and guard shack, would occur at a designated off-site parking lot in accordance with APM-TT-02.

One of the Projects listed in Table 4.17-2, Hidden Creek Estates, is located to the west of the intersection of Tampa Avenue/Sesnon Boulevard, and north of Mason Avenue overcrossing of SR 118. The traffic that would ultimately access the Hidden Creek Estates project site does not substantively use Tampa Avenue or the Tampa Avenue/Sesnon Boulevard intersection. Consequently, there is no substantive cumulative contribution to the arterial system used by the Proposed Project. Therefore, implementation of the Proposed Project and the percent contribution of traffic on the local network is negligible and not cumulatively considerable.

4.17.4 Applicant Proposed Measures

There are no applicant proposed measures associated with cumulative impacts.

4.17.5 Mitigation Measures

There are no significant cumulative impacts as a result of the Proposed Project and other past, present and probably future projects. Therefore no mitigation measures are proposed or required to offset implementation of the Proposed Project.

4.17.6 References

Crawford, Multari & Clark, Associates, 2005. *City of Santa Clarita Downtown Newhall Specific Plan Environmental Impact Report, SCH# 2005021021*. June 2005. http://www.santa-clarita.com/cityhall/cd/ed/redevelopment/newhall_deir.pdf (accessed on 1 May 2009)

Crawford, Multari & Clark, Associates, 2009. *Initial Study for the North Newhall Specific Plan Stage I: Lyons Avenue At-Grade Crossing*. April 2008. http://www.santa-clarita.com/cityhall/cd/planning/northnewhall/docs/InitialStudy.Rev.4.21.08.Library.pdf (accessed on 1 May 2009)

City of Los Angeles, Department of City Planning, 2009. http://cityplanning.lacity.org/ Accessed June 2009.

City of Santa Clarita, Community Development Department, 2009. http://www.santa-clarita.com/cityhall/cd/ Accessed June 2009.

Los Angeles County, Department of Regional Planning, 2009. http://planning.co.la.ca.us/ Accessed June 2009.

Willdan. *Environmental Impact Report for The South Santa Clarita Sphere of Influence Amendment, Annexation and Prezone, State Clearinghouse Number 2007081014.* March 2009.

4.18 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines requires that environmental documents "...discuss the ways in which the Proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly in the surrounding environment...."

A project could be considered to have growth inducing effects if it:

- Either directly or indirectly fosters economic or population growth or the construction of additional housing in the surrounding area;
- Removes obstacles to population growth;
- Requires the construction of new community facilities that could cause significant environmental effects; or
- Encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively.

4.18.1 Environmental Impacts

Would the Proposed Project either directly or indirectly foster economic or population growth or the construction of additional housing in the surrounding area?

The Proposed Project includes construction and installation of the: proposed Central Compressor Station, proposed PPL, proposed office trailer and guard house relocations, proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission modifications, and proposed substation upgrades. The purpose of the Proposed Project is to:

- Reduce the potential for interruptions in the ability to store gas in the Storage Field, by replacing the obsolete TDC compressor station;
- Meet the terms of the SA between SoCalGas and parties to Phase I of the 2009 BCAP (D.08-12-020). The SA requires that SoCalGas replace the TDCs and expand the overall injection capacity at the field by approximately 145 million cubic feet per day (MMcfd) in a timely manner;
- Convert the compression from the Storage Field from natural gas to electric;
- Design and construct a new electric compressor station and all necessary related infrastructure to increase the injection capacity at the Storage Field by approximately 145 MMcfd;
- Provide improved vehicle access to the Storage Field by relocating and updating the existing guard house; relocate and update existing office trailers in close proximity to the current TDC station and Storage Field facilities; preserve other on-site facilities and minimize changes to Storage Field facilities where feasible and practicable;

- Ensure successful conversion to electric compression prior to decommissioning the existing TDCs to minimize the potential for gas supply service interruptions after construction of the Proposed Project;

- Utilize recent engineering and technological advances;

- Provide improved vehicle access to the Storage Field by relocating and updating the existing guard house; relocate and update existing office trailers in close proximity to the current TDC station and Storage Field facilities; preserve other on-site facilities and minimize changes to Storage Field facilities where feasible and practicable;

- Ensure successful conversion to electric compression prior to decommissioning the existing TDCs to minimize the potential for gas supply service interruptions after construction of the Proposed Project;

- Utilize recent engineering and technological advances.

- Reduce air emissions associated with the existing compressors.

The Proposed Project could be considered growth-inducing if growth resulted from the direct or indirect employment needed to construct, operate, and maintain the Proposed Project. However, as previously discussed in Section 4.12, the construction and operation of the Proposed Project would not affect employment in the Proposed Project area. If contract workers were employed, they would not cause growth in the Proposed Project area due to the short-term and temporary nature of their employment. The Proposed Project would require routine maintenance and emergency repair, but would not require additional full-time personnel than currently exists. In addition, the Proposed Project does not include the construction of any residential uses and therefore would not directly foster population growth. The Proposed Project would therefore not result in directly or indirectly fostering economic or population growth or construction of additional housing in the surrounding area.

Would the Proposed Project remove obstacles to population growth?

The Proposed Project would be located on an already developed site that has similar uses. The Proposed Project includes upgrades to existing facilities and construction of new facilities to provide the necessary load requirements for the new electric-powered, motor-driven compressors on the SoCalGas property. This upgraded service would follow the existing circuit route. Public services and utilities are already provided in the Proposed Project area and extensions or expansions of those facilities would be limited to service/utility connections at the SoCalGas Storage Field site for proposed on-site uses. No service/utility connections would be provided to other off-site uses and the service/utility connections would be sized to serve only the Proposed Project site. Therefore, implementation of the Proposed Project would not result in the removal of any impediments to growth in the area.

Would the Proposed Project require the construction of new community facilities that could cause significant environmental effects?

As noted previously, the Proposed Project consists of modifications, upgrades, and replacement of existing natural gas storage and sub-transmission facilities in order to implement the Settlement Agreement, reduce costs to rate payers, improve efficiency and reliability of natural gas storage at the Storage Field, and relocate existing facilities. However, the Proposed Project does not involve the creation of any community facilities or public roads that would provide new access to undeveloped or under-developed areas, or extend public service to an area presently not served by electricity.

Would the Proposed Project encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively?

The Proposed Project consists of modifications and replacement of existing natural gas storage and sub-transmission facilities in order to implement the Settlement Agreement, reduce costs to rate payers, improve efficiency and reliability of natural gas storage at the Storage Field, and relocate existing facilities. The Proposed Project would not provide a new source of electricity or gas nor would it provide service/utility connections to off-site uses. Implementation of the Proposed Project would not encourage nor facilitate other activities that could significantly affect the environment either individually or cumulatively. Additional information on cumulative impacts resulting from the Proposed Project is provided in Section 4.17, Cumulative Analysis.

4.18.2 Mitigation Measures

No mitigation would be required.

4.18.3 References

California Environmental Quality Act (CEQA). CEQA Guidelines. 2008

4.4 Biological Resources

This section of the PEA focuses on the biological resources that occur or have the potential to occur on the Proposed Project site based on a review of available literature and database sources and field surveys of the site. This section also discusses the methods used to collect information regarding biological resources, the regulatory framework governing biological resources, potential impacts to biological resources, and actions that would mitigate these impacts. The implementation of the Proposed Project could result in significant impacts to biological resources; however, these impacts would be reduced to a less-than-significant level by utilizing the mitigation measures and Applicant Proposed Measures (APMs) provided in this document.

Project components that do not have the potential to impact biological resources were not assessed. These components include installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations and related support activities.

4.4.1 Existing Biological Setting

This section discusses the physical and biological conditions currently present in the Proposed Project area on a local and regional level, as well as the regulatory framework that may bear on the planning and implementation of the Proposed Project.

4.4.1.1 Regional Setting

The region in which the Proposed Project lies is within the Transverse Ranges of southern California, so named because they lie on an east-west axis. Due to this geographic orientation, the Transverse Ranges are ecologically unique. Though the south slopes of these ranges receive the majority of the yearly precipitation, they also receive extended periods of direct sunlight throughout the day and are therefore vegetated by drought-tolerant scrub vegetation. This phenomenon, known as 'slope effect', is accentuated by the long, hot summers associated with southern California's Mediterranean climate. Though the north slopes of the Transverse Ranges see less precipitation because they are in the rain shadow, they are the moister side of the mountains due to lower evaporation rates and slower snow melt.

The Proposed Project is situated in two geographically distinct areas. The proposed modification to SCE's 66 kV sub-transmission lines begin at the Newhall Substation located in the City of Santa Clarita in the Santa Clarita Valley. The line travels south through the Valley, ultimately veering southwest through the lower foothills of the Santa Susana Mountains to SoCalGas's Storage Field, inside which the remainder of the Proposed Project components, discussed below, are situated. Therefore, components of the Proposed Project occur in both the Santa Clara River watershed and the Los Angeles River (San Fernando Valley) watershed, which are separated by the Santa Susana Mountains.

The Santa Clarita Valley drains the Upper Santa Clara River, an approximately 680 square mile watershed area. It is separated from the San Fernando Valley and the Los Angeles Basin by the Santa Susana and San Gabriel Mountain ranges to the south, east, and west, and is bound to the north by the Sierra Pelona Mountains. The Proposed Project components within the Storage Field are situated inside

Limekiln Canyon, whose primary drainage feature, Limekiln Canyon Wash, drains an area of 1,061 acres (1.66 square miles).

Due to the physiographic features noted above and its general proximity to coastal and desert influences, the area in which the Proposed Project occurs is in a transitional microclimatic zone subject to both coastal and high desert climatic influences. As it is located far enough from the coast to generally escape damp air and fog, summers generally are hot and winters mild. Annual precipitation in the area is around 14 to 16 inches, most of which occurs between October and early April.

It is important to note that approximately one mile of SCE's existing two 66 kV sub-transmission lines immediately southeast of the Sunshine Canyon Landfill passes through a SEA as designated by Los Angeles County. There are no other project components that pass through or are located within a designated SEA. The County defines SEAs as "ecologically important land and water systems that are valuable as plant and/or animal communities, often integral to the preservation of threatened or endangered species and the conservation of biological diversity in the County."[1] A number of SEAs have been identified throughout the County based on factors such as the presence of sensitive plant and animal species; locally and/or regionally limited habitats; migration, breeding, and feeding grounds; and undisturbed habitat. This designation serves as the County's primary means of recognition, management, and conservation of its biological resources.

The two existing SCE 66 kV sub-transmission lines traverse what is currently known as the Santa Susana Mountains SEA (SEA #20), though a study conducted by the County in 2000 has recommended the expansion of this SEA based on factors required to sustain the plant and wildlife populations in these areas. The proposed designation for this new SEA would be the Santa Monica Mountains/Simi Hills SEA, or SEA #27. There are no other project components that would pass through or be located within a designated SEA.

4.4.1.2 Existing and Proposed Facilities

Proposed Central Compressor Station, Proposed Office Trailer, Guard House Relocation, and Construction Staging Areas

Inside the Storage Field, the TDC station, office trailer, and guard house facilities are proposed to be dismantled and replaced. The TDC station will remain on-site for one to two field cycles of reliable service using the new VFD motor-driven compressors. Suction, blowdown, and electrical components of the TDC station will be reconfigured to support the proposed Central Compressor Station. The Plant Station, currently located in the southwestern portion of the facility between Limekiln and Aliso Canyons, will be reconfigured with the relocation of existing office trailers, and construction of a proposed Central Compressor Station within the area currently occupied by the existing facilities. In support of the construction effort, three staging areas in which equipment will be stored are proposed near the Plant Station. These are the Porter Fee Road Staging Area, the Porter 37 Staging Area, and the Porter 42 Staging Area. The boundaries of each of these work areas are depicted in Figure 4.4-1. Though much of

[1] Los Angeles County Department of Regional Planning, *Draft General Plan*, Conservation and Open Space Element. 2008.

the area where the Plant Station is located is developed or otherwise disturbed, areas of native habitat occur adjacent to this disturbance throughout the facility. Surrounding the Plant Station, plant communities include coastal sage and chaparral scrub, oak woodland, and the riparian corridor of Limekiln Canyon Wash. Vegetation communities are discussed in further detail in Section 4.4.3.1, below. The proposed guard house relocation is in a previously disturbed area within the Storage Field property boundary, within the City of Los Angeles.

Electricity is currently supplied to the Storage Field via the SCE 16 kV Gavin circuit from the Newhall Substation through the Ward Substation at the northeast corner of the facility. This infrastructure will remain unchanged; the Proposed Project plans to supply the new VFD motor-driven compressors within the proposed Central Compressor Station with electricity via the proposed SCE Natural Substation and proposed PPL. The proposed SCE Natural Substation will be fed by the proposed modification of two SCE 66 kV sub-transmission lines, which also originate at the Newhall Substation. The proposed SCE 66 kV sub-transmission modifications are discussed in further detail below.

Proposed SCE Natural Substation and Proposed PPL

The proposed SCE Natural Substation will be interconnected to two SCE 66 kV sub-transmission lines proposed for modification. The proposed PPL will be constructed to deliver electricity from the proposed SCE Natural Substation to the proposed Central Compressor Station. The location for the proposed SCE Natural Substation is between the two existing 66 kV line support structures on the ridge approximately 1800 feet to the west of the site of the proposed Central Compressor Station. Much of the habitat in this area is heavily disturbed, with non-native annual grasses comprising the majority of the vegetation. There is, however, some burned native scrub scattered in the vicinity of the proposed construction site. Figure 4.4-1 depicts the location of the proposed SCE Natural Substation.

66 kV Sub-transmission System

The existing SCE 66 kV sub-transmission system supports two source lines, both of which originate at the Newhall Substation. The proposed modification of two SCE 66 kV sub-transmission lines originates at SCE's Newhall Substation at the corner of Lyons Avenue and Wiley Canyon Road in the city of Santa Clarita and travels towards the southeast to a point just northwest of the junction of the 5 and 14 Freeways. At that point, the alignment turns southwest towards the Storage Field, crossing to the west of the Plant Station. The support structures along this portion of the line, including H-frame wood poles and LSTs, will be replaced with TSPs. TSPs are required to support the additional weight of the new conductors for both lines on the existing system.

Along the existing transmission corridor, the SCE 66 kV sub-transmission alignment traverses a diverse range of terrain and land uses, including urban development through the city of Santa Clarita and open space through the foothills of the San Gabriel and Santa Susana Mountains. Vegetation communities encountered along the transmission corridor range from disturbed non-native grassland to pockets of oak woodlands and are described in further detail in the Plant Communities subsection, below.

Other Substations

SCE proposes to upgrade/modify the existing relay systems within the Newhall, Chatsworth, and San Fernando Substations, to provide additional protection from energy surges. Installation of electrical relay systems will be limited to the replacement of existing equipment and/or the installation of new equipment within the substation MEER, which would not result in ground disturbance outside the existing disturbed areas or other impacts to biological resources.

SCE proposes to modify the San Fernando Substation with the removal of four existing LSTs and installation of four TSPs, three of which may occur outside of the substation boundary. This substation and the towers in the immediate vicinity, including those that will be replaced, are located in a developed or landscaped urban area devoid of native vegetation.

4.4.1.3 Methodology for Biological Assessment

AECOM biologists conducted surveys of the Proposed Project areas to inventory biological resources and determine the potential for special-status plants and wildlife to occur in those areas or in the immediate vicinity. The methodology and results of those surveys are described below.

Literature and Data Review

Prior to visiting the site, queries were processed of the California Natural Diversity Database (CNDDB)[2] and California Native Plant Society (CNPS)[3] databases to identify special-status plant or animal species previously recorded in the project vicinity. The CNDDB lists historical and recently recorded occurrences of both special-status plant and animal species and sensitive habitats; whereas the CNPS database lists historical and recent occurrences of special-status plant species only. The areas searched include the USGS 1969 7.5-minute Oat Mountain quadrangle (in which the Proposed Project resides), as well as the surrounding eight USGS quadrangles: from northwest to southeast; Val Verde, Newhall, Mint Canyon, Simi, San Fernando, Calabasas, Canoga Park, and Van Nuys.

Other data reviewed included, but was not limited to, the United States Fish and Wildlife Service (USFWS) online critical habitat portal's[4] mapping function to determine the locations of critical habitat in the vicinity of the project, the US Department of Agriculture – Natural Resources Conservation Service (NRCS) Web Soil Survey[5] to determine soil characteristics within the survey areas, aerial photographs, and topographic maps.

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[2] California Department of Fish and Game. 2003. *Natural Diversity Database*. Version 3.1.0, Updated April 2009.
[3] California Native Plant Society. 2001. *Inventory of Rare and Endangered Plants* (online edition, v7-09b). Sacramento, CA. Accessed online: http://www.cnps.org/inventory, April 2009.
[4] United States Fish and Wildlife Service. *Critical Habitat Portal*. Accessed online: http://crithab.fws.gov/, April 2009
[5] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Accessed online: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, April 2009.

Biological Habitat Assessment

AECOM biologists conducted field surveys of the areas encompassed by the Proposed Project on April 20 through 23, April 27 through 30, and June 8 and 9, 2009. The Proposed Project areas on which reconnaissance-level field studies were performed included the electrical line support structures along the alignment of the proposed SCE 66 kV sub-transmission modification between the SCE Newhall Substation to the ridge top just southwest of the Storage Field; four support towers within the boundary and in the vicinity of SCE's San Fernando Substation; and, within the Storage Field property, the location of the existing compressor station and office facilities, the site of the proposed Central Compressor Station and office relocation, the site of the proposed guard house relocation, construction staging areas, and a soils mixing area. The study area included each of these locations as well as the surrounding 25 meter radius (hereto referred to as the "study areas"). Figure 4.4-1 depicts each of the areas that were surveyed. The assessment consisted of the identification and mapping of vegetation types, the general characterization of jurisdictional resources such as wetlands and/or drainages, and the determination of the potential for the presence of special-status plant and wildlife species in the Proposed Project area. Biologists recorded general habitat conditions in field notes or on aerial photographs and delineated vegetation on aerial photographs, which was later transposed into polygons in Google Earth™ and eventually into a Global Information System (GIS) mapping program. Photographs and/or Global Positioning System (GPS) points were taken of representative site conditions and of biological resources of note.

The determination of the potential for special-status species to occur on the project site is based on the proximity of previously recorded occurrences in the CNDDB and CNPS databases to the Proposed Project site, on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges of special-status plant and wildlife species recorded to occur in the region. A detailed discussion of the potential for the presence of special-status wildlife species is provided in the Special-Status Wildlife Species subsection, below, and summarized in Table 4.4-2. No protocol-level surveys were conducted for special-status wildlife species. The results of focused surveys for special-status plants are discussed below in the Special-Status Plant Species subsection.

Rare Plant Survey

A focused rare plant survey was conducted concurrently with the reconnaissance-level habitat assessment. Methods of this survey are detailed in the *Draft Special-Status Plant Species Report – Aliso Canyon Turbine Replacement Project*, included as Appendix B.2. This document also provides a list of the plant species observed in the study area during the assessment and a discussion of the potential occurrence of other special-status plants based on their geographic and elevation range and the presence of suitable habitat and soil conditions.

4.4.1.4 Existing Biological Conditions

This section describes the results of the biological surveys conducted within the study areas, including discussions of vegetative communities, wildlife, sensitive species, jurisdictional resources, and protected trees.

Plant Communities

This section discusses the various types of habitats encountered during the April 2009 field survey of the existing SCE 66 kV sub-transmission alignment/tower locations. The plant communities described below were generally classified using the nomenclature described in Robert F. Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California.*[6] However, due to the above-mentioned geographic and climatic transitional nature of the Santa Clarita area, habitats in the area can likewise be transitional with many subtle intergradations between plant communities. Where applicable, the communities observed in the field were named to their closest counterpart in the Holland classification system and, where intergrades of habitat types were encountered, the nomenclature was modified to accurately describe the field observations. Figure 4.4-1 provides maps of the habitats in the Proposed Project study area. The vegetation communities described below are reflected in this figure. Acreages for each study area and surrounding areas outside the 25-meter structure buffers but within the SCE 66 kV transmission line right-of-way have been calculated and are listed in Table 4.4-1.

It is important to note that many of the areas surveyed were affected by several brush fires that have burned through the region in recent years. Most of these areas are currently undergoing the successional regrowth and stump sprouting to which these communities are adapted, but many have also been colonized by non-native grasses and forbs, resulting in a disturbed regime that is not indicative of recent conditions. Recently burned communities have been depicted in the vegetation map.

Venturan Coastal Sage Scrub. Approximately 9.4 acres of the Proposed Project study area is comprised of this plant community, making it the dominant habitat along the length of the 66 kV sub-transmission alignment. This vegetation type comprises low, mostly soft-woody, drought deciduous shrubs between 1.5 feet to 6 feet tall and occurs generally in dry areas with shallow soil. Cover can vary in density, but the understory vegetation is usually sparse and may consist solely of non-native annual grasses. Along the transmission line route, the quality of this type of habitat varied widely, from undisturbed areas vegetated with dense stands of native shrubs to areas disturbed by fire and/or human interaction in which non-native grasses and forbs dominated, sparsely interspersed with sage scrub species.

California sagebrush (*Artemisia californica*) is universal as a co-dominant species in this habitat with other prominent components varying based on location. These co-dominants included purple sage (*Salvia leucophylla*), black sage (*S. mellifera*), white sage (*S. apiana*), bush monkey flower (*Mimulus aurantiacus*), bush mallow (*Malacothamnus fasciculatus*), and California buckwheat (*Eriogonum fasciculatum*). Sub dominants also varied based on each location and included chaparral yucca (*Yucca whipplei*), deerweed (*Lotus scoparius*), poison oak (*Toxicodendron diversilobum*), and larger shrubs/trees such as toyon (*Heteromeles arbutifolia*), sugarbush (*Rhus ovata*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*). While these stands are generally dense with little herbaceous understory, annuals such as blue dicks (*Dichelostemma capitatum*), California poppy (*Eschscholzia californica*), morning glory (*Calystegia* sp.), wild cucumber (*Marah macrocarpus*), gallium (*Gallium* spp.) and Indian paintbrush (*Castilleja* sp.) can be found in openings in the scrub and at the margins of disturbed areas.

[6] Holland, R. 1986. Preliminary List of Terrestrial Natural Communities of California. Department of Fish and Game, Sacramento, California.

Chamise Chaparral. This plant community also featured prominently within the Proposed Project site, making up ~ 4.32 acres throughout the study area. This habitat is overwhelmingly dominated by chamise (*Adenostoma fasciculatum*) and is interspersed with other scrub species such as California sagebrush, thick-leaved yerba santa (*Eriodictyon crassifolium*), and black sage, and larger, sometimes arborescent shrubs including toyon, sugarbush, ceanothus (*Ceanothus* sp.) and blue elderberry. This vegetation type is typically found in dry, exposed areas and is adapted to a regular fire regime by stump sprouting. This community is usually very dense with little understory or litter below the shrub layer, which ranges from 3 feet to 10 feet in height.

Ceanothus Chaparral. A small (~ 0.02-acre) area of chaparral dominated by arborescent hairy-leaf ceanothus (*Ceanothus oliganthus*) occurs between Towers 5-4 and 5-5. Other components of this plant community include chamise, thick-leaved yerba santa, California sagebrush, and white, black, and purple sages.

Coastal Sage - Chaparral Scrub. Frequently, there are areas within the Proposed Project boundary in which chaparral and sage scrub communities intermingle resulting in this habitat type containing components of both. A total of ~ 7.7 acres of Coastal Sage – Chaparral Scrub occur within the study area. The dominant species here include chamise and California sagebrush, with sub-dominants such as purple sage and bush mallow filling in. Also interspersed are larger shrubs and small trees such as sugarbush and blue elderberry.

Poison Oak Chaparral. Two small areas, one north of Tower 5-5, the other west of Tower 6-5, totaling 0.05-acre were occupied by this plant community, dominated solely by poison oak.

Coast Live Oak Woodland. The most prominent woodland community, comprising ~ 6.98 acres of the study area, is coast live oak woodland, which typically occurs on north facing slopes and shaded ravines. This habitat is dominated by coast live oak (*Quercus agrifolia*) varying in height from 30 feet to 75 feet, though valley oak (*Quercus lobata*) and California walnut (*Juglans californica*) may also be present as a smaller component. A developed shrub layer is generally lacking in this plant community except at its margins where it may intergrade with scrub habitat. In these areas, shrubs may consist of toyon, sugarbush, and blue elderberry. An herbaceous understory is likewise usually sparse due to the heavy accumulation of leaf litter from the dense oak overstory, but is generally limited to non-native grasses such as ripgut brome (*Bromus diandrus*) and wild oat (*Avena fatua*).

Several regulatory and conservation agencies, including the California Department of Fish and Game (CDFG), consider this community to be a sensitive biological resource. Sensitive habitats are natural communities that support concentrations of sensitive plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife (CNDDB, 2009). Sensitive habitats are not afforded legal protection unless they support protected species, except for wetland habitats, which cannot be filled without authorization from the U.S. Army Corps of Engineers (USACE) and CDFG.

California Walnut Woodland. Small areas of this plant community, dominated by California walnut, were observed intergrading with the coast live oak woodland in the vicinity of Towers 14-3 (~ 0.04-acre) and 14-4 (~ 0.03-acre). Burned pockets of this habitat also occur in the lower reaches of Limekiln Canyon Wash on the Storage Field adjacent to the proposed guard house relocation site (~0.12-acre) and on the slope to the south of the Porter Fee Road Staging Area (~0.98-acre). Due to the more open tree canopy and lesser amount of leaf litter associated with this type of woodland, a more developed understory consisting of shrubs such as sugarbush, white sage, and the non-native species horehound (*Marrubium vulgare*) may be present in these upland areas. An herbaceous layer of primarily non-native annual grasses such as brome (*Bromus* sp.) and oat (*Avena* sp.) rounds out the understory. Within the riparian corridor of Limekiln Canyon Wash, the understory would have been of a more phreatophytic nature; however, understory and overstory were both sparse due to the recent burn. Some regrowth was observed in this area. As with the Coast Live Oak Woodland, this community is considered a sensitive biological resource.

California Ash Woodland. One stretch (~ 0.41-acre) of this plant community occurs along the alignment of the proposed SCE 66 kV sub-transmission line modifications, on the slopes of the ravine below Towers 14-3 and 14-4. This vegetation type is similar to and intergrades with Coast Live Oak and California Walnut Woodlands, but is dominated by California ash (*Fraxinus dipetala*).

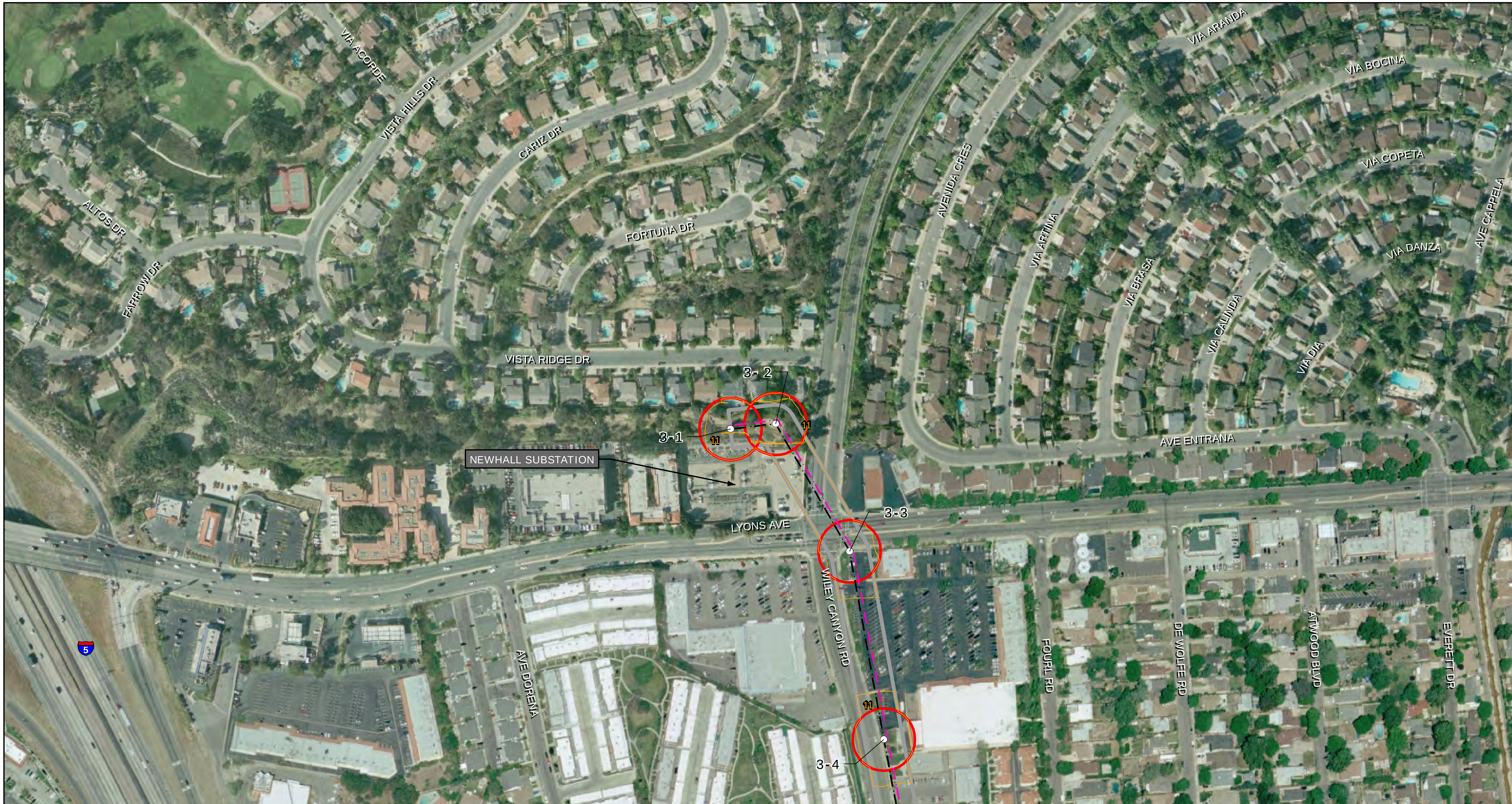
Southern Cottonwood – Willow/Coast Live Oak Riparian Forest. This habitat, which occurs in the Limekiln Canyon Wash along the western border of the Plant Station within the Storage Field facility, is actually a mixture of two Holland plant communities, Southern Cottonwood – Willow Riparian Forest and Southern Coast Live Oak Riparian Forest. Approximately 0.53-acre of this habitat occurs to the northeast and south of the Porter 42 Staging Area and ~ 0.29-acre occurs within the new office trailer and compressor station study areas. The vegetation in this riparian area is dominated by coast live oaks along the upper banks and tree willows interspersed with Fremont cottonwood (*Populus fremontii*) lower in the drainage. Historically, areas dominated by these communities are within perennial drainages with frequently flooding. However, as with most streams throughout southern California, improvements to the Aliso Canyon Wash have drastically reduced this flooding regime and changed the natural succession of this habitat. Due to this type of physical alteration and the pressures of development throughout southern California, both the Southern Cottonwood – Willow Riparian Forest and Southern Coast Live Oak Riparian Forest plant communities are considered sensitive by the CDFG.

Southern Willow Scrub. This plant community, comprising ~ 0.15-acre of the Proposed Project study area, dominates the section of the South Fork Santa Clara River, which runs to the west of Towers 4-1 and 4-4. This dense riparian habitat occurs in loose, sandy, or fine gravelly alluvium and is dominated by several species of willow (*Salix* spp.) with scattered emergent Fremont cottonwood. Due to the density of the canopy, little understory is generally present, but this habitat can transition to a lower scrub including mulefat (*Baccharis salicifolia*), emerging willows, and other riparian species. This habitat is listed by the CDFG as a sensitive resource.

Non-native Grassland/Disturbed. This habitat type also features prominently throughout the Proposed Project study area, comprising ~ 7.3 acres of hillsides and road margins and other disturbed areas. Areas occupied by this plant community have generally been previously disturbed, allowing opportunistic non-native grasses such as bromes, oats, and fescue (*Vulpia microstachys*) to dominate. In some areas, perennial natives including purple needle grass (*Nassella pulchra*) and California aster (*Lessingia filaginifolia*) may be present to some degree. Also prominent are several native annual ‘wildflowers’, including phacelia (*Phacelia* spp.), lupine (*Lupinus* spp.), and California poppy.

Developed/Urban Landscaping/Roads. Originating at the Newhall Substation, nearly 1-mile of the northern portion of the proposed SCE 66 kV sub-transmission modification travels through urban Santa

Clarita; several other locations along the alignment of the proposed SCE 66 kV sub-transmission modification consist of human development. These areas, which comprise ~ 24.3 acres of the total survey area, do not classify as a plant community, but as land use. They include urban development such as housing and commercial areas and associated non-native landscaped areas, and both paved and unpaved roads.



Map Location

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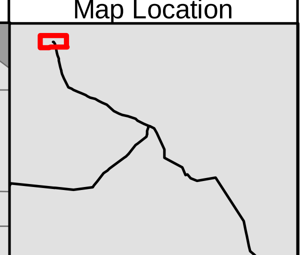

- Engineering Poles
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- PPL Structures
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- Existing SCE 66 kV Alignment
- PPL
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- 50m Tower/Facility Buffer*
- Vegetation Boundary
- Burnt Vegetation Area

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1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 01 of 18

Southern California Gas Company A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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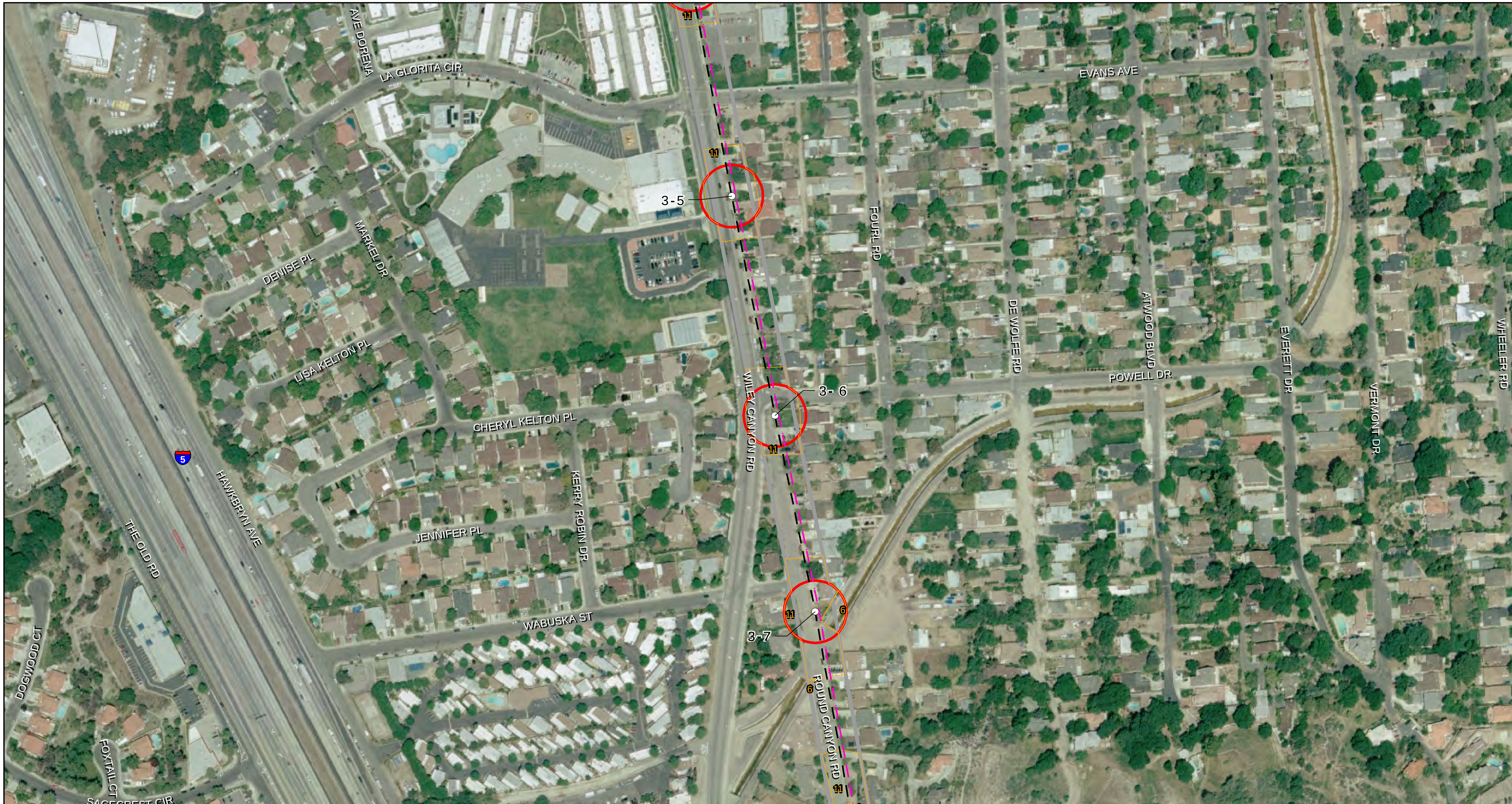

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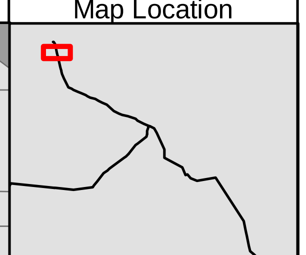

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0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 02 of 18

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Project: 06205-134
Date: September 2009

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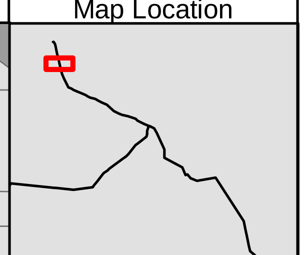

- Engineering Poles
- Existing Towers
- PPL Structures
- Proposed SCE 66 kV Modification
- Existing SCE 66 kV Alignment
- PPL
- 100ft Wide ROW*
- 50m Tower/Facility Buffer*
- Vegetation Boundary
- Burnt Vegetation Area

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

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0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 03 of 18

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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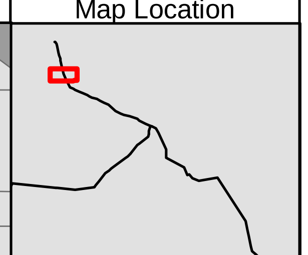

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- PPL
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- 50m Tower/Facility Buffer*
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N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 04 of 18

Southern California Gas Company A Sempra Energy utility

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Date: September 2009

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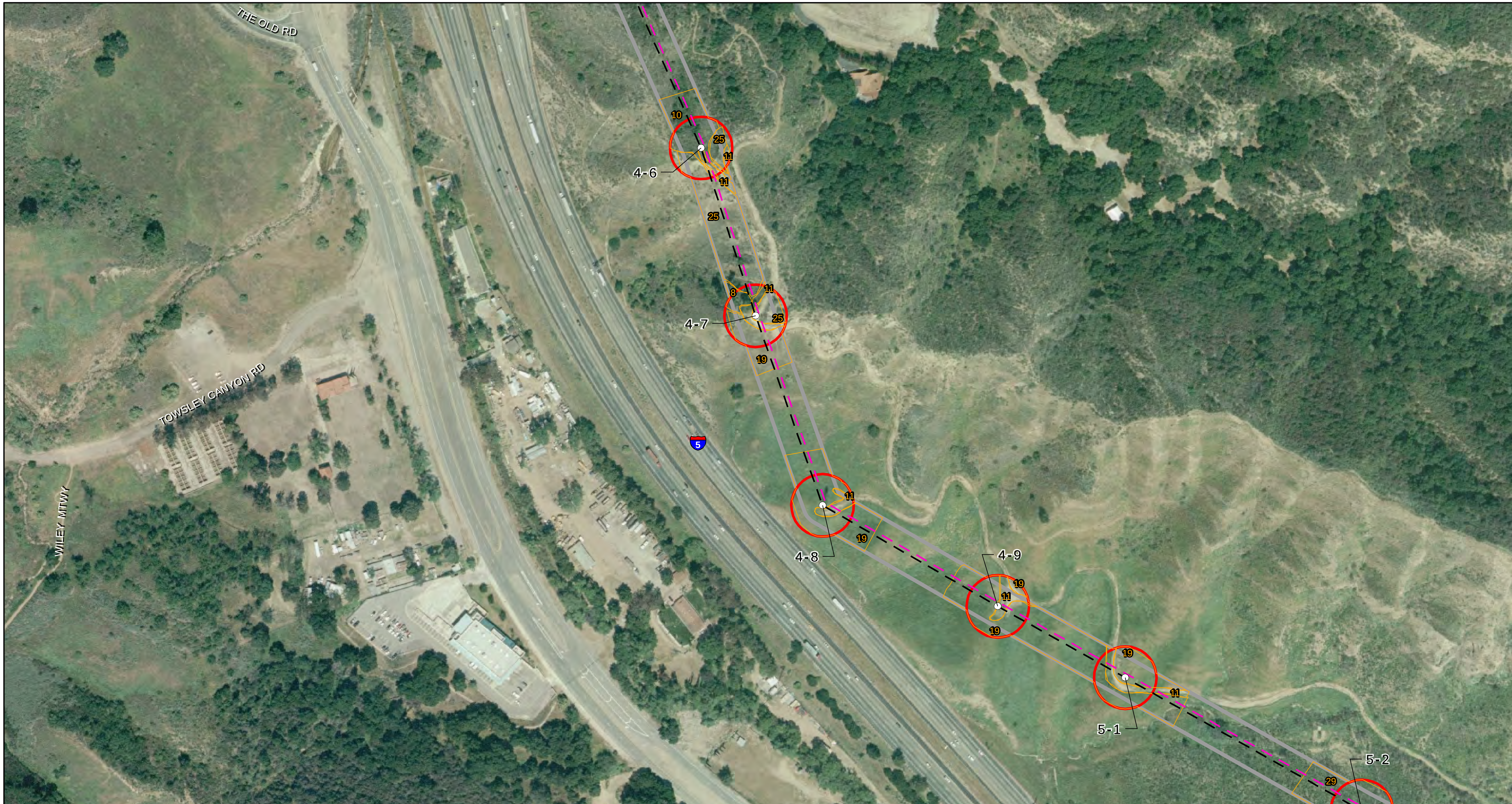

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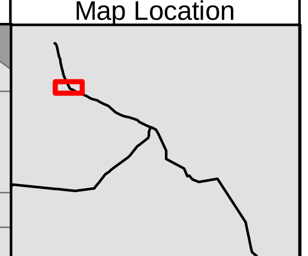

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N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 05 of 18

Southern California Gas Company A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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Map Location

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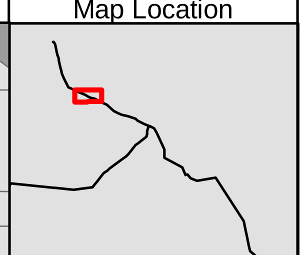

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0 250 500 Feet

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Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 06 of 18

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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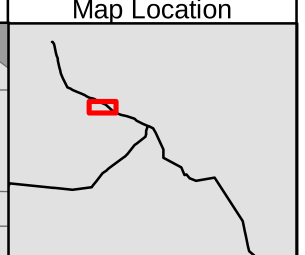

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0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 07 of 18

Project: 06205-134
Date: September 2009

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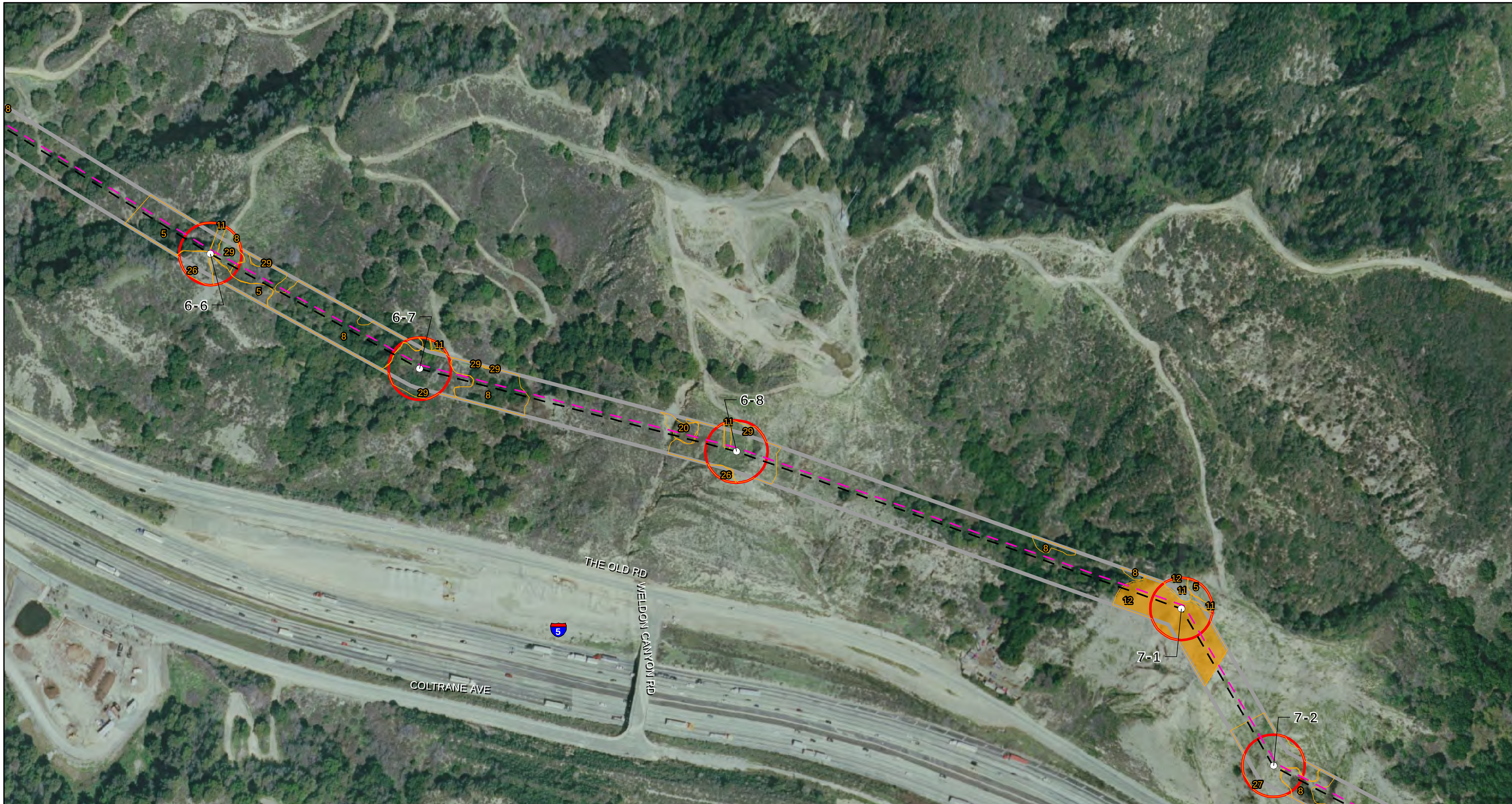

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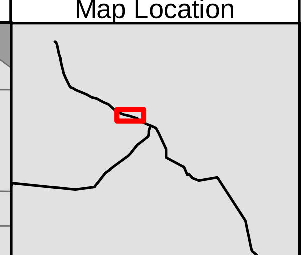

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6 - Channelized Drainage
7 - Coast Live Oak
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30 - Venturan Coastal Sage Scrub/Oak Woodland Intergrade
31 - Walnut Woodland

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 08 of 18

AECOM

Project: 06205-134
Date: September 2009

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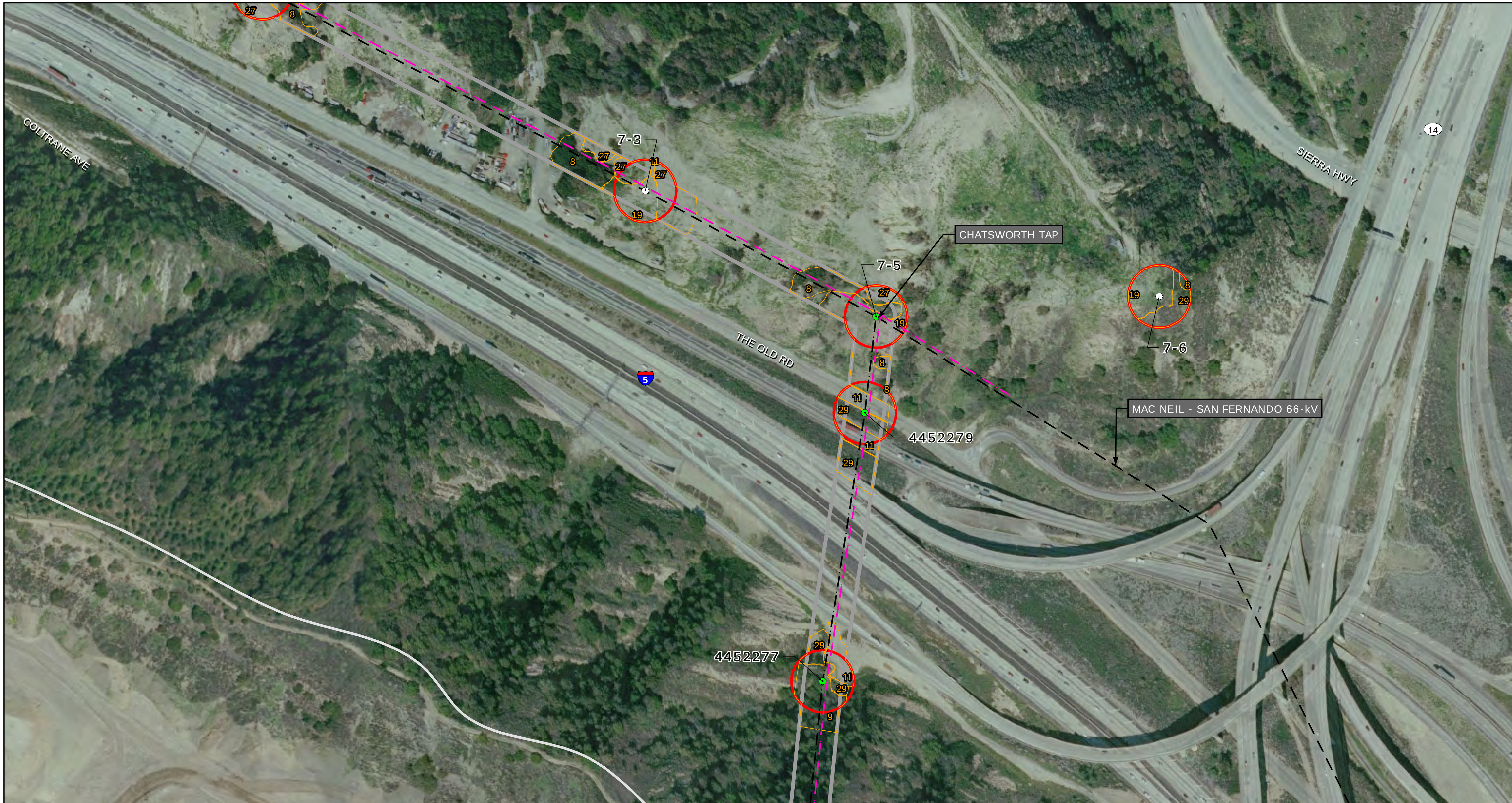

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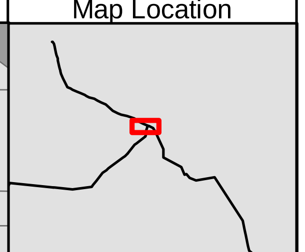

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- Existing Towers
- PPL Structures
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- Existing SCE 66 kV Alignment
- PPL
- 100ft Wide ROW*
- 50m Tower/Facility Buffer*
- Vegetation Boundary
- Burnt Vegetation Area

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

vegetation Types

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0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

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AECOM

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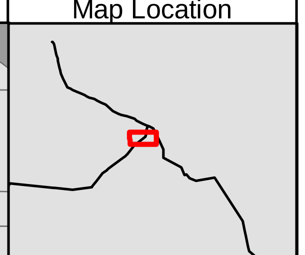

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0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

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AECOM

Project: 06205-134
Date: September 2009

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Map Location

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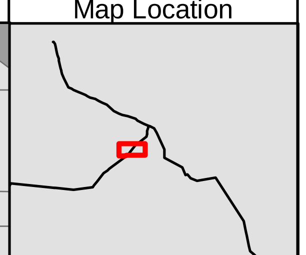

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1 inch = 250 feet

0 250 500 Feet

N S E W

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 11 of 18

AECOM

Project: 06205-134
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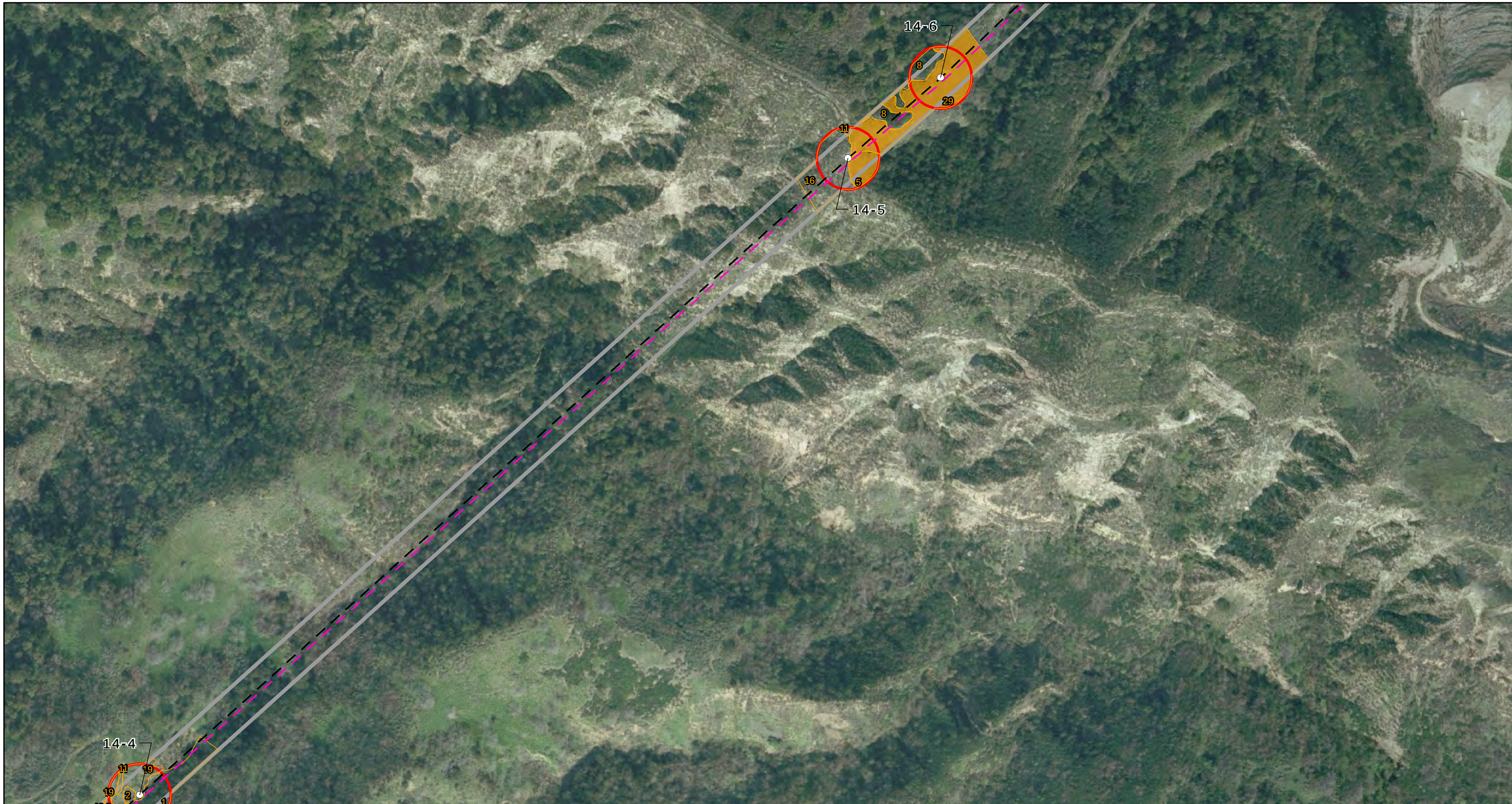

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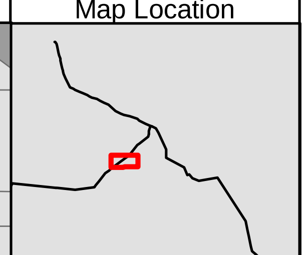

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1 inch = 250 feet

0 250 500 Feet

N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 12 of 18

Southern California Gas Company A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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Map Location

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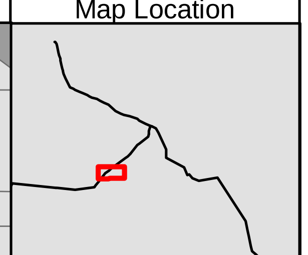

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31 - Walnut Woodland

1 inch = 250 feet

0 250 500 Feet

N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 13 of 18

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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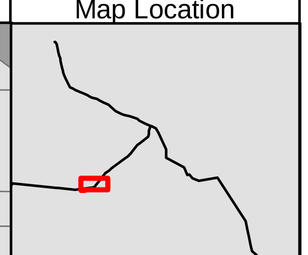

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31 - Walnut Woodland

1 inch = 250 feet

0 250 500 Feet

N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 14 of 18

AECOM

Project: 06205-134
Date: September 2009

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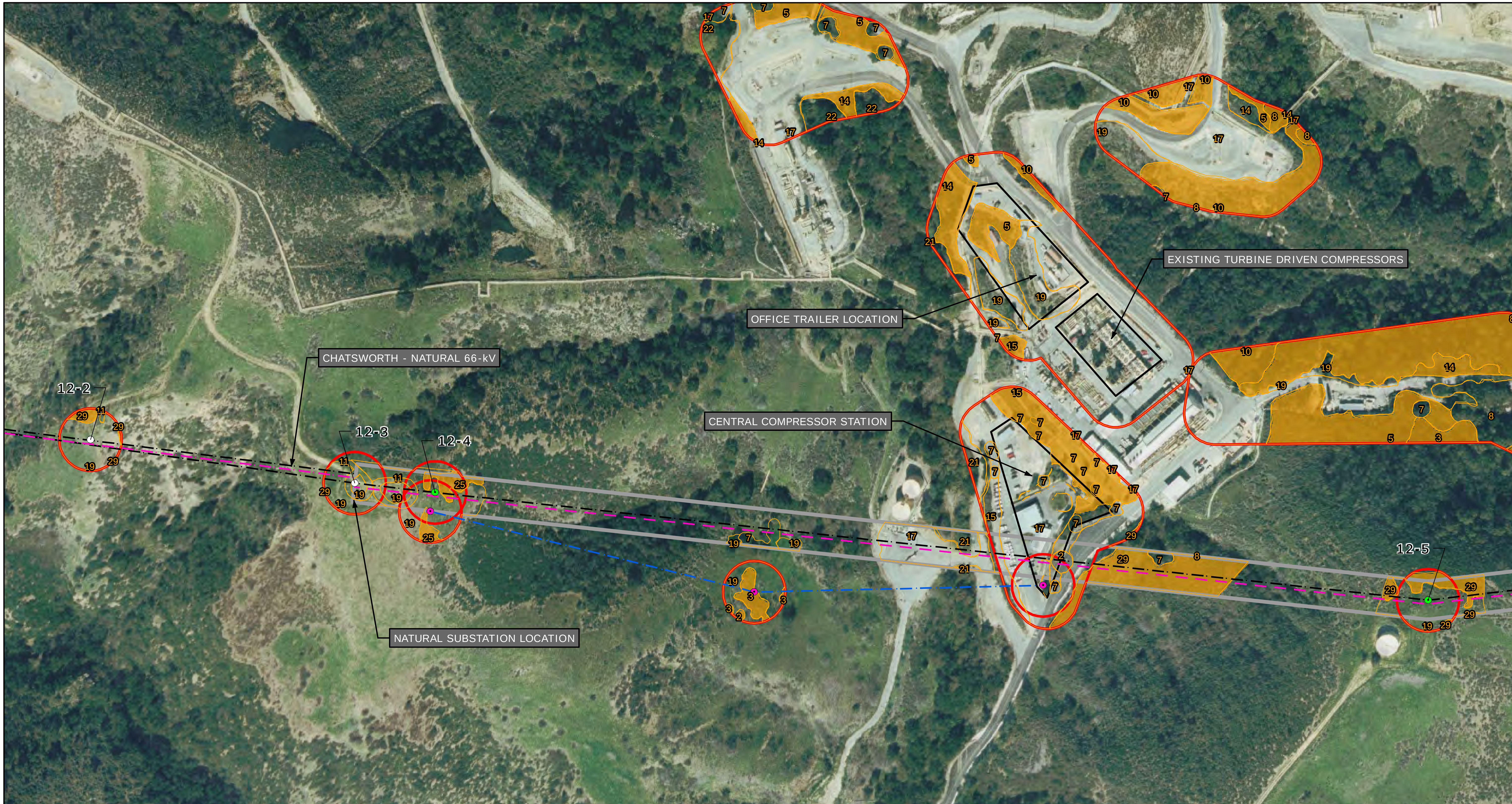

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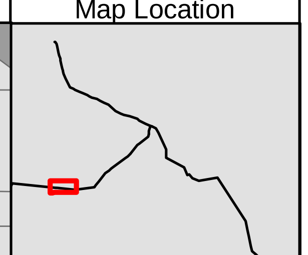

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0 250 500 Feet

N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 15 of 18

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: September 2009

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Map Location

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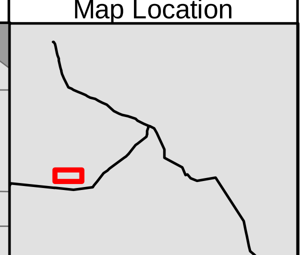

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0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-1
Vegetation Communities

Mapsheet 16 of 18

Project: 06205-134
Date: September 2009

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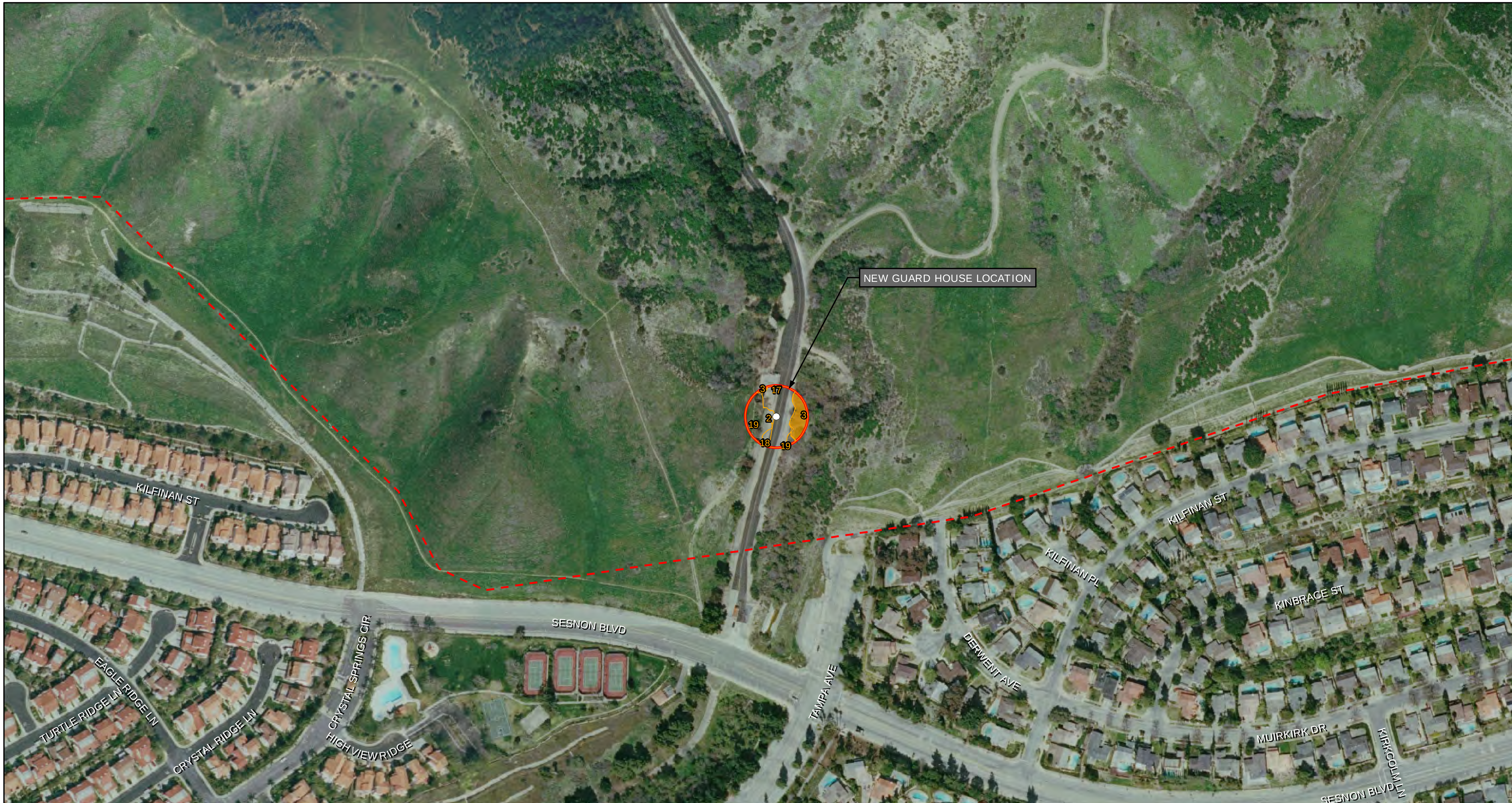

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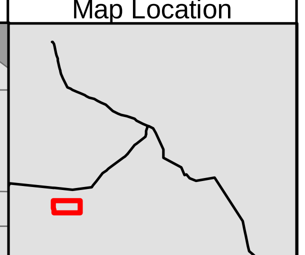

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N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 17 of 18

A Sempra Energy utility

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Project: 06205-134
Date: September 2009

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Map Location

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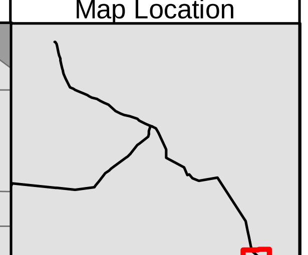

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N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-1 Vegetation Communities

Mapsheet 18 of 18

Project: 06205-134
Date: September 2009

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Table 4.4-1 Acreage of Plant Communities in the ACTR Project Study Areas

Location	Acreages of Habitat								
	Venturan Coastal Sage Scrub	Chamise Chaparral	Coastal Sage – Chaparral Scrub	California Ash Woodland	Coast Live Oak Woodland	California Walnut Woodland	Southern Willow Scrub	Non-native Grassland	Developed/Urban Landscaping/ Disturbed/Roads
66 kV Sub Transmission System									
3-1									0.44
3-2									0.45
3-3									0.45
3-4									0.44
3-5									0.44
3-6									0.44
3-7									0.39
3-8	0.05				0.25			0.09	0.06
3-9		0.07	0.39						0.01
4-1	0.03						0.04		0.40
4-2	0.03								0.43
4-3								0.20	0.28
Pole 4170603								0.16	0.30
4-4					0.03		0.11	0.05	0.28
4-5		0.22	0.23						0.05
4-6			0.39						0.04
4-7			0.15		0.05			0.16	0.08
4-8								0.39	0.07
4-9								0.38	0.09
5-1								0.39	0.09
5-2	0.45								0.02
5-3	0.17							0.25	0.06
5-4[†]			0.39						0.06
5-5[††]	0.33								0.10
5-6	0.22				0.16			0.08	
5-7					0.15			0.11	0.19

Location	Acreages of Habitat								
	Venturan Coastal Sage Scrub	Chamise Chaparral	Coastal Sage – Chaparral Scrub	California Ash Woodland	Coast Live Oak Woodland	California Walnut Woodland	Southern Willow Scrub	Non-native Grassland	Developed/Urban Landscaping/ Disturbed/Roads
5-8	0.37				0.02				0.08
5-9		0.34							0.08
6-1	0.06	0.36							0.03
6-2					0.24			0.19	0.05
6-3	0.24	0.18			0.01				0.03
6-4	0.41				0.03				0.02
6-5	0.44								0.03
7-1		0.05 (0.34)							0.08
7-2	(0.42)				0.05				
7-3	(0.23)							0.24	0.01
7-5	(0.40)				0.07				
7-6	0.18				0.01			0.29	
Pole 4452279	0.15 (0.07)								0.22
Pole 4452277	0.08				0.28				0.09
15-8	0.19				0.20				0.04
Pole 4476886	0.39								0.04
15-1	0.45								0.01
14-6	0.37				0.10				
14-5	0.08	0.13						0.25	0.01
14-4				0.25		0.03		0.15	0.02
14-3	0.03			0.16	0.12	0.04		0.08	0.02
14-2	0.33				0.14				0.01
14-1	0.57				0.08				0.01
13-3	0.32								0.02
13-2	0.19							0.21	0.06
13-1	0.04							0.41	0.03
12-5	0.10							0.36	

Location	Acreages of Habitat								
	Venturan Coastal Sage Scrub	**Chamise Chaparral**	**Coastal Sage – Chaparral Scrub**	**California Ash Woodland**	**Coast Live Oak Woodland**	**California Walnut Woodland**	**Southern Willow Scrub**	**Non-native Grassland**	**Developed/Urban Landscaping/ Disturbed/Roads**
12-4	0.12							0.30	0.03
12-3								0.32	0.11
12-2	(0.08)							0.38	0.02
Aliso Canyon Storage Field Study Areas									
Plant Station	1.47	0.25	0.47		0.19		0.29†††	0.73	6.62
Soils Processing Site	0.70	0.86	0.28					0.06	3.76
Guard House Relocation Site						0.12		0.14	0.21
Porter Fee Road Staging Area		(1.01)	3.53 (0.82)		1.05 (3.41)	(0.98)		0.69	3.06
Porter 37 Staging Area		0.06	1.47		0.09			0.31	1.41
Porter 42 Staging Area		0.45	(0.23)		0.23		0.53†††		2.05
SCE Natural Substation and PPL Study Areas									
Natural Substation	0.12							0.62	0.14
PPL Pole #1	0.04		0.06					0.36	0.03
PPL Pole #2						0.15		0.32	
PPL Pole #3	(0.04)								0.39

† Additional habitat – 0.02-acre Ceanothus Chaparral
†† Additional habitat – 0.05-acre Poison Oak Chaparral
††† In these locations, this habitat is more accurately referred to and described in the text as Southern Cottonwood-Willow/Coast Live Oak Riparian Woodland

*** Note:** Numbers in parentheses indicate acreages of disturbed and/or sparse habitat.

Special-Status Resources

"Special-status" refers to those resources that meet one or more of the following criteria:

- Plant and animal species listed by the USFWS or CDFG as Threatened or Endangered, proposed for listing as Threatened or Endangered, or that are candidates for listing as Threatened or Endangered.

- Plant and animal species considered "Endangered, Rare, or Threatened" as defined by the CEQA Guidelines.[7] The CEQA Guidelines state that a species of animal or plant is Endangered when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors.[8] A species is Rare when either "(A) although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or (B) the species is likely to become endangered within the foreseeable future throughout all or a portion of its range and may be considered 'Threatened' as that term is used in the Federal Endangered Species Act."[9]

- Animal species designated as "Species of Special Concern" or "Fully Protected" by the CDFG.[10] Although these species are not listed as Threatened or Endangered, the CDFG recommends protecting them because populations of these species are generally declining and they could be listed as Threatened or Endangered (under the California Endangered Species Act [CESA]) in the future.

- Plants included on Lists 1 or 2 of the CNPS.[11] These species are included because the CNPS is recognized by the CDFG as an authority on the status of Rare plant species in California. Furthermore, the criteria for placement on List 1 or List 2 are similar to criteria that CDFG and USFWS use for species considered as candidates for listing or that are already listed as Threatened or Endangered.

- Birds designated by the USFWS as "Birds of Conservation Concern."[12] Although these species have no legal status under the Endangered Species Act (ESA), the USFWS recommends protecting them because populations of these species are generally declining and they could be listed as Threatened or Endangered (under the CESA) in the future.

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[7] California Public Resources Code, Title 14, Division 6, Chapter 3, California Environmental Quality Act Guidelines, Section 15380.
[8] Ibid, Section 15380(b).
[9] CFR, Title 16, Endangered Species Act, Chapter 35 – Endangered Species, Section 1531-1544.
[10] California Department of Fish and Game, Habitat Conservation and Planning Branch, *California's Plants and Animals*. Online: http://www.dfg.ca.gov/hcpb/species/species.html.
[11] California Native Plant Society, *Inventory of Rare and Endangered Plants of California*. Sixth edition. September 2001.
[12] US Fish and Wildlife Service, *Birds of Conservation Concern 2002*. Division of Migratory Bird Management, Arlington, Virginia. 2002, 99pp. [Online: http://migratorybirds.fws.gov/reports/bcc2002.pdf].

- Species listed on the CDFG List of Special Animals.[13] This list incorporates the lists of a number of other agencies and authoritative groups, including the American Fisheries Society categories of risk for marine, estuarine, and diadromous fish stocks; the Audubon Watch List; the California Department of Forestry and Fire Protection list of sensitive species; the USDA Forest Service list of sensitive species; the American Bird Conservancy Green List; the United States Bird Conservation Watch List; the Western Bat Working Group list of High, Medium, and Low conservation priority bat species; and the Xerces Society Red List of pollinators.

- Riparian habitat or other natural communities considered sensitive or otherwise regulated by the CDFG.

- Wetlands or other aquatic habitats under the jurisdiction of the USACE.

- Established resident or migratory wildlife movement corridors.

- Trees, habitats, or other resources protected by local policies and ordinances or otherwise considered of local concern.

Biological resources that meet one or more of these criteria are generally afforded some level of protection by Federal, State, and/or local agencies, including the CDFG, USFWS, and local municipalities such as the county of Los Angeles and the city of Santa Clarita. Based on the resource, its listing designation, and level of impacts to the resource, this protection may range from disallowing any take whatsoever, as is the case with CDFG "Fully Protected" species, to requiring various forms of mitigation, such as species-specific surveys, relocation of a species, consultation with resource agencies, or the development of a re-vegetation plan to compensate for lost habitat.

Figure 4.4-2 indicates the sensitive plant and animal species and other biological resources that were recorded during the April and June 2009 surveys and the locations in which they were observed.

Special-Status Plants

Review of the CNDDB and CNPS databases identified 21 special-status plant species that have been recorded in the Proposed Project region (9 USGS 7.5-minute quadrangles). These plants were evaluated for their potential to occur on the Proposed Project site based on habitat, soil, elevation, and range information for each species. The species with a reasonable potential to occur in the Proposed Project areas based on these factors were the focus of the rare plant surveys.

As described in the *Draft Special-Status Plant Species Report* (Appendix B-2), two sensitive plant species were identified during the April and June 2009 surveys, Plummer's mariposa lily (*Calochortus plummerae*) and slender mariposa lily (*Calochortus clavatus* var. *gracilis*), both listed as 1B.2 in the CNPS Inventory of Rare and Endangered Plants. Four Plummer's mariposa lily individuals were observed on the Plant Station property within burned Coastal Sage – Chaparral Scrub habitat on the slope to the northeast of the existing compressor station, ~ 35 feet from the edge of the road. Slender mariposa lilies were

[13] Ibid, *California's Plants and Animals*. Online: http://www.dfg.ca.gov/hcpb/species/species.html.

identified in burned coastal sage and chaparral habitat in the vicinity of Towers 14-6 (5 individuals), 14-2 (~ 57 individuals), 14-1 (~ 186 individuals), 13-3 (more than [>] 500 individuals), 13-2 (>300 individuals), 13-1 (~ 40 individuals), and 12-5 (>200 individuals).

The CNPS defines List 1B plants as “rare, threatened, or endangered in California and elsewhere” with a Threat Rank of 0.2 denoting “[f]airly threatened in California (moderate degree/immediacy of threat).” These plants “meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the CDFG Code, and are eligible for State listing.”

<u>Special-Status Wildlife</u>

Review of the CDFG’s CNDDB database[14] identified 38 special-status wildlife species that have been documented in the region surrounding the Proposed Project site. These species were evaluated for their potential to occur within the study areas and those determined to have some potential are identified in Table 4.4-1, along with their regulatory status and habitat requirements. Records of species sightings in Table 4.4-1 have been taken from the CNDDB. Species that were identified in the CNDDB as having occurred in the region but whose habitat requirements are not met within the project study area or in the immediate vicinity were not discussed.

No threatened or endangered wildlife species were observed during the April and June 2009 survey of the Proposed Project study areas. However, the following wildlife species and other resources that are considered otherwise ‘sensitive’ were observed during the field study:

- One coast horned lizard (*Phrynosoma coronatum*), a CDFG Species of Special Concern (SSC) in the vicinity of Tower 14-1.

- One Cooper’s hawk perching on Tower 14-2 and later soaring over the study area. This species is on the CDFG Watch List when nesting and is also protected under the MBTA.

- An active red-tail hawk nest in the lattice of Tower 4-8. One adult was observed tending the nest and foraging in the area. The red-tailed hawk and their nests are protected under the MBTA and raptors are protected by the CDFG under Section 3503.5 of the California Fish and Game Code.

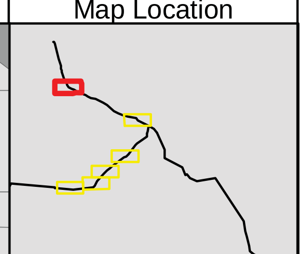
- An unoccupied nest comprised of larger sticks and twigs in the lattice of Tower 7-2. While not currently in use, this nest may be utilized by raptors during the breeding season.

The locations of these observations are depicted on Figure 4.4-2.

[14] California Department of Fish and Game, *Natural Diversity Database*, Version 3.1.0, Updated April 2009.

Map Location

Map Location



Legend

- Biological Resources Observed During 2009 AECOM Surveys
- Engineering Poles
- Existing Towers

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-2
Biological Resources Observed in the ACTR Project Study Areas

Mapsheet 1 of 6

Southern California Gas Company A Sempra Energy utility

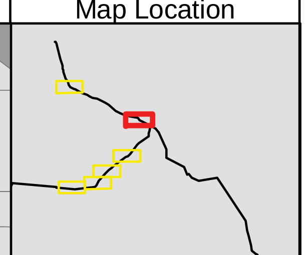
AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-4-2_Biological_Resources.mxd

Map Location

Map Location



Legend

- Biological Resources Observed During 2009 AECOM Surveys
- Engineering Poles
- Existing Towers

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-2
Biological Resources Observed in the ACTR Project Study Areas

Mapsheet 2 of 6

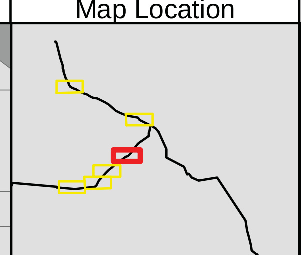
AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-4-2_Biological_Resources.mxd

Map Location

Map Location



Legend

- Biological Resources Observed During 2009 AECOM Surveys
- Engineering Poles
- Existing Towers

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-2
Biological Resources Observed in the ACTR Project Study Areas

Mapsheet 3 of 6

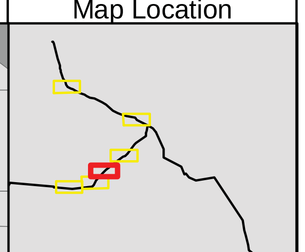
AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-4-2_Biological_Resources.mxd

Map Location

Map Location



Legend

- Biological Resources Observed During 2009 AECOM Surveys
- Engineering Poles
- Existing Towers

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-2
Biological Resources Observed in the ACTR Project Study Areas

Mapsheet 4 of 6

Southern California Gas Company
A Sempra Energy utility

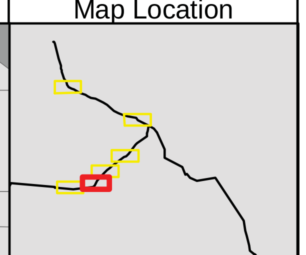
AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-4-2_Biological_Resources.mxd

Map Location

Map Location



Legend

- Biological Resources Observed During 2009 AECOM Surveys
- Engineering Poles
- Existing Towers

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

1 inch = 250 feet

0 250 500 Feet

N W E S

Aliso Canyon Turbine Replacement Project

Figure 4.4-2
Biological Resources Observed in the ACTR Project Study Areas

Mapsheet 5 of 6

Southern California Gas Company
A Sempra Energy utility

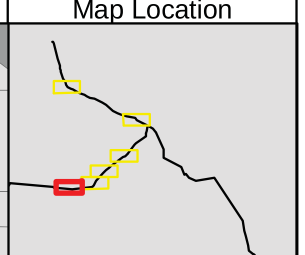
AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-4-2_Biological_Resources.mxd

Map Location

Map Location



Legend

- Biological Resources Observed During 2009 AECOM Surveys
- Engineering Poles
- Existing Towers

*Study Area is 50 m Tower Buffer and 100ft Wide ROW

1 inch = 250 feet

0 250 500 Feet

Aliso Canyon Turbine Replacement Project

Figure 4.4-2
Biological Resources Observed in the ACTR Project Study Areas

Mapsheet 6 of 6

AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_4-4-2_Biological_Resources.mxd

As indicated in Table 4.4-2, based on the presence of suitable habitat and known occurrences in the vicinity of the Proposed Project site, 19 special-status wildlife species have some potential to occur on the site. The potential for occurrence was assessed as follows:

Observed: Species was observed within the Proposed Project area during the field surveys.

Expected: Species is known to occur within 5 miles of the Proposed Project study area (based on CNDDB records and /or professional expertise specific to the Proposed Project study area or species) and there is ideal habitat within the Proposed Project study area.

Moderate Potential: Species is known to occur within 5 miles of the Proposed Project study area (or 10 miles for airborne species) and generally suitable habitat is present, though not always ideal. Alternatively, there is good quality habitat in the area but there are no historic records within the 5-mile or 10-mile radius detailed above.

Low Potential: Species is known to occur in the vicinity of the Proposed Project study area; however, records may be old and the study area supports only poor quality or marginal habitat that would likely not be suitable to support a significant population. If the species does occur in the study area, it would likely be a migrant and not utilize the site to reproduce or nest due to a lack of suitable habitat, or because the area is outside the known breeding range of the species.

Not Expected: Species has been identified in the CNDDB records, but either the recorded observations are extremely old; key habitat requirements are absent; or the habitat in the Proposed Project study area is so degraded, small, or isolated that it would be very unlikely for the species to utilize the area.

Table 4.4-2
Special-Status Wildlife Species with the
Potential to Occur within the Proposed Project Study Area

Common Name and Scientific Name	Status		Habitat Requirements	Potential for Occurrence
	Federal	State		
INSECTS				
Monarch butterfly *Danaus plexippus*	--	CDFG Special Animal	Roosts located in wind-protected tree groves (eucalyptus, Monterey cypress) with nectar and water sources nearby. Winter roost sites extend along the coast from northern Mendocino County to Baja California, Mexico.	*Not Expected*: No appropriate roost sites exist within the Proposed Project study area.
AMPHIBIANS				
Coast Range newt *Taricha torosa torosa*	--	SSC	Terrestrial species inhabits moist areas such as beneath woody debris, in rock crevices, and animal burrows in wet forests, oak forests, chaparral, and rolling grasslands. Becomes aquatic when breeding, entering ponds, reservoirs, and sluggish pools in streams to breed, typically with the first heavy rains.	*Expected:* Species has been observed in catch basins in Limekiln Canyon Wash on the Storage Field property.
REPTILES				
Southwestern pond turtle *Actinemys marmorata pallida*	--	SSC	Streams, ponds, freshwater marshes, and lakes with growth of aquatic vegetation and adequate basking sites.	*Not Expected*: Suitable aquatic habitat, with basking sites, does not exist in riparian areas.
Silvery legless lizard *Anniella pulchra pulchra*	FSS	SSC	Leaf litter associated with sandy or loose loamy soil of high moisture content under sparse vegetation, particularly in coastal dune and oak woodland habitats.	*Expected*: Leaf litter in oak woodland habitat is likely to support this species.
Coast (San Diego) horned lizard *Phrynosoma coronatum* (*blainvilli* population)	FSS	SSC	Occurs in relatively open areas of coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest habitat on sandy soil, often in association with harvester ants.	*Observed:* Suitable scrub habitat and friable soil exist throughout much of the alignment area. Species was observed near Tower 14-1.

Table 4.4-2
Special-Status Wildlife Species with the
Potential to Occur within the Proposed Project Study Area

Common Name and Scientific Name	Status		Habitat Requirements	Potential for Occurrence
	Federal	State		
Two-striped garter snake *Thamnophis hammondii*	BLM, FSS	SSC	Perennial and intermittent streams having rocky or sandy beds and artificially created aquatic habitats (man-made lakes and stock ponds); requires dense riparian vegetation.	*Expected*: Some riparian habitat exists within the Proposed Project study area in the Limekiln Canyon Wash and South Fork Santa Clara River drainage. While this habitat is not ideal, in that it is not of the dense nature preferred by this species, this species has been observed by SoCalGas personnel in Limekiln Canyon Wash on the Storage Field property.
BIRDS				
Cooper's hawk *Accipiter cooperi*	--	CDFG-WL SSC (nesting)	Nests in open forests, groves, or trees along rivers, or low scrub of treeless areas. The wooded area is often near the edge of a field or water opening.	*Observed:* One individual was observed perching on Tower 14-2 and later taking flight over the SCE 66 kV sub-transmission survey area. No nest was observed in the tower structure.
Grasshopper sparrow *Ammodramus savannarum*	--	SSC	Uncommon summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity Counties south to San Diego County. Occurs in dry, dense grasslands, especially those with a variety of native grasses, tall forbs, and scattered shrubs for singing perches. A thick cover of grasses and forbs is essential for concealment. Occurs in southern California mainly on hillsides and mesas in coastal districts, but has bred up to 5000 feet (1500 meters) in the San Jacinto Mountains.	*Not Expected:* Several acres of grassland occur within the Proposed Project study area; however, it primarily comprises a monoculture of non-native grasses and does not provide the characteristics preferred by this species.
Golden eagle (nesting and wintering) *Aquila chrysaetos*	BCC, BLM	CDFG-FP/WL, CDF	Open terrain in deserts, mountains, slopes, and valleys. Nest mainly on cliffs, also in large trees (such as oaks), and rarely on artificial structures or the ground.	*Low Potential*: Open grassland for foraging and potential nesting areas in oaks and support towers occur throughout the study area. However, species is uncommon in the area; one reported observation in the region in the Santa Monica Mountains.

Table 4.4-2
Special-Status Wildlife Species with the Potential to Occur within the Proposed Project Study Area

Common Name and Scientific Name	Status		Habitat Requirements	Potential for Occurrence
	Federal	State		
Burrowing owl *Athene cunicularia*	BCC, BLM	SSC	Open, dry grassland and desert habitats throughout California, or scrublands characterized by low-growing, widely spaced vegetation. Dependant upon burrowing mammals, especially California ground squirrel.	*Low Potential*: Ideal sparse grassland or scrub habitat with open areas and low vegetation does not generally occur within the Proposed Project study area. However, due to recent fires and slow stump sprouting, this species may spread to burrows in recovering scrub areas. There have been several recent observations of burrowing owl recorded in the region.
Western yellow-billed cuckoo (nesting) *Coccyzus americanus occidentalis*	FC, BCC	CE	Nests in thick willow riparian areas often mixed with cottonwood with an understory of blackberry, nettles, or wild grape.	*Not Expected*: The thick riparian habitat preferred by this species is not present in the Proposed Project study area. Willow habitat in Limekiln Canyon Wash and the unchannelized section of the South Fork Santa Clara River is not dense enough for nesting.
Yellow warbler *Dendroica petechia brewsteri*	--	SSC	Riparian habitats, preferably of willow, cottonwood, aspen, sycamore and alder for nesting and foraging. Also nests in montane shrubbery of open conifer forests.	*Not Expected:* Cottonwood – willow habitat in Limekiln Canyon wash may provide a suitable nesting and foraging area; however, this species has only been observed once in the region, in the Santa Clara river in 1979.
White-tailed kite (nesting) *Elanus leucurus*	--	CDFG-FP	Inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows or marshes close to isolated dense-topped trees for nesting and perching.	*Moderate Potential*: Preferred habitat occurs throughout much of study area. Species was observed in 2005 along the Santa Clara River just west of I-5.
Yellow-breasted chat *Ictera virens*	--	SSC	Summer resident in riparian thickets of willow and other brushy tangles such as blackberry and wild grape near water courses. Forages and nests within 10 feet of the ground.	*Not Expected:* Riparian habitat within the study area does not provide the dense understory utilized by this species for nesting and foraging.

Table 4.4-2
Special-Status Wildlife Species with the
Potential to Occur within the Proposed Project Study Area

Common Name and Scientific Name	Status		Habitat Requirements	Potential for Occurrence
	Federal	State		
Coastal California gnatcatcher *Polioptila californica californica*	FT, ABC, AWL, USBC	SSC	Obligate, permanent resident of low coastal sage scrub on flat or gently sloping terrain below 2500 feet above mean sea level (MSL).	*Moderate Potential:* Suitable scrub habitat occurs within the Proposed Project area, particularly in the southern portion of SCE's 66 kV sub-transmission lines. It is possible that the species may be present in this area. It is also important to note that much of the study area lies within Critical Habitat for this species as designated by the USFWS.
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE, ABC, AWL, USBC, BCC	CE	Summer resident of riparian areas below 2000 feet above MSL. Nests primarily in willow, *Baccharis*, and mesquite.	*Low Potential*: Riparian habitat in Limekiln Canyon Wash drainage has some potential to support this species, though due to effects suffered during recent fires, this potential is low.
MAMMALS				
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	--	SSC	Inhabits coastal sage scrub in southern California. Prefers intermediate canopy stages of shrub habitats and edges of shrub-herbaceous and tree-herbaceous transition areas.	*Moderate Potential*: Suitable scrub habitat does occur within the Proposed Project study area. Species was observed in 2005 approximately 3 miles south of Castaic Lake, 1-mile west of San Francisquito Canyon.
San Diego desert woodrat *Neotoma lepida intermedia*	--	SSC	Moderate to dense canopies in coastal scrub of southern California from San Diego County to San Luis Obispo County. Particularly abundant in rock outcrops, rocky cliffs, and slopes.	*Moderate Potential*: Suitable scrub habitat with rocky substrates is present throughout much of the Proposed Project study area. It is possible that this species occurs due presence of its preferred habitat. Woodrat nests were observed in oak woodlands in the area, but not within the study area.

Table 4.4-2
Special-Status Wildlife Species with the Potential to Occur within the Proposed Project Study Area

Common Name and Scientific Name	Status		Habitat Requirements	Potential for Occurrence
	Federal	State		
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	--	SSC	Prefers open ground with fine sandy soil in open grassland and coastal sage communities in and around the Los Angeles Basin. May not dig extensive burrows, but hide under weed and dead leaves.	*Low Potential:* Suitable habitat is present within the Proposed Project study area; however, only recorded occurrence of this specie was in 1903 in the San Fernando Valley.

STATUS KEY:
Federal
FE = Federally Endangered
FT = Federally Threatened
FC= Candidate for Federal Listing
BLM = Bureau of Land Management Sensitive
FSS = US Forest Service Sensitive
BCC = USFWS Bird of Conservation Concern (a watch list)

State
CE= California Endangered
CT= California Threatened
SSC= Species of Special Concern
CDFG-FP = CDFG Fully Protected
CDFG-WL = CDFG Watch List
CDF = California Department of Forestry Sensitive

Other
ABC = American Bird Conservancy Green List
AWL = Audubon Watch List
USBC = United States Bird Conservation Watch List
AFS = American Fisheries Society – Endangered (EN), Threatened (TH), and Vulnerable (VU)
WBWG = Western Bat Working Group (a watch list) – High (H), Medium (M), and Low (L) priorities
CDFG Special Animal = Species that do not have a formal designation by any resource agency, but that are considered sensitive resources by the CDFG due to declines known in population.

Sensitive Plant Communities

Four habitats types recognized as sensitive plant communities by the CDFG occur in the Proposed Project study area:

- Patches of coast live oak woodland occupy several areas along the existing SCE 66 kV sub-transmission alignment as well as on the Storage Field property, totaling 1.71 acres within the Proposed Project study area.

- Two small areas of California walnut woodland totaling 0.07-acre occur adjacent to Towers 14-3 and 14-4 along the alignment of the existing SCE 66 kV sub-transmission lines. Three additional burned areas of this community are located adjacent to Tower 13-3 (0.12-acre), in Limekiln Canyon Wash adjacent to the proposed guard house relocation area (0.12-acre), and to the south of the Porter Fee Road Staging Area (0.98-acre). Due to this disturbance, successional regrowth has resulted in these areas becoming dominated by fast-growing non-native species, including annual grasses, though some resprouting of the walnut trees is taking place.

- Approximately 0.1-acre of Southern Willow Scrub habitat occurs in the unchannelized section of the South Fork Santa Clara River that flows to the west of Towers 14-1 through 14-4, though it is degraded due to urban influences, including channelization to the north and south and its proximity to Wiley Canyon Road.

- One community (0.29-acre) that is characterized as a mix of Southern Cottonwood – Willow Riparian Forest and Southern Coast Live Oak Riparian Forest, both of which are listed as sensitive plant communities by the CDFG, occurs on the Storage Field property occupying the Limekiln Canyon Wash drainage channel.

Jurisdictional Waters

Jurisdictional waters could include "Waters of the United States" and "Waters of the State," defined as follows:

Waters of the United States - a federal designation that includes traditionally navigable waters, wetlands adjacent to traditionally navigable waters, non-navigable tributaries of traditional navigable water that are relatively permanent (i.e., the tributaries typically flow year-round or have continuous flow at least seasonally), and wetlands that directly abut such tributaries.

Waters of the State - any surface or groundwater, including saline waters, within the boundaries of California. Waters of the state include natural streams , irrigation ditches or canals, ponds and waters in privately operated channels.

Jurisdictional waters are subject to a variety of state and federal regulatory review. Waters of the United States are under the jurisdictional administration of the USACE, under the provisions of Section 404 of the federal Clean Water Act (CWA).[15] Waters of the State are subject to regulatory administration by the RWQCB, under the provisions of the California Porter-Cologne Water Quality Act.[16] In addition, the RWQCB, pursuant to Section 401 of the CWA,[17] has authority to review Section 404 permits. CDFG, under Section 1602 of the California Fish and Game Code,[18] has regulatory authority over streambed and banks. Refer to Section 4.4.4.1, below, for a more detailed definition of the jurisdiction applicability of these agencies.

The goal of the field surveys conducted during April and June 2009 was to determine the general locations and conditions of potential jurisdictional resources; however, no comprehensive delineation or determination of the Federal and State jurisdictional waters and streams was conducted. If impacts to jurisdictional resources are anticipated, a comprehensive delineation would be required for submittal to the USACE for review.

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[15] CFR, Title 33, Clean Water Act, Section 404, Navigation and Navigable Waters, Chapter 26 Water Pollution Prevention and Controls, Subchapter IV Permits and Licenses, Section 1344 Permits for dredged or fill material (1977, as amended 1994).
[16] California Water Code, (1969, as amended), *Porter-Cologne Water Quality Control Act*, Section 13020.
[17] Ibid, Certification.
[18] California Fish and Game Code, Section 1602. Online: http://www.dfg.ca.gov/1600/1600code.html.

Though the existing SCE 66 kV sub-transmission system traverses several canyons and drainages, the areas of disturbance resulting from the proposed modification will be limited to the sites in which support structures are currently situated, which are generally in disturbed areas and on ridge tops. As such, significant impacts to jurisdictional areas along this alignment are not anticipated. There is one ~ 2,500-foot unchannelized section of the South Fork Santa Clara River, concrete lined to both the north and south, that flows just to the west of Towers 4-4 and 4-1. This section is populated by southern willow riparian scrub, interspersed with Fremont cottonwoods and its ordinary high water mark (OHWM) width ranges from 3 feet to 6 feet. Project plans do not include construction activities or the discharge of dredge or fill materials within the jurisdictional limits of this drainage; therefore, a Section 404 permit will not be required. The implementation of mitigation measures and BMPs are expected to limit potential indirect impacts such as sediment flows into this drainage, which will further reduce impacts to a less than significant level.

The Limekiln Canyon Wash flows through the Storage Field property, just west of the area in which the demolition of the existing compressor station and subsequent construction of a proposed Central Compressor Station will take place. Through this area, the average OHWM of this perennial stream measures 4 feet and the vegetation is dominated by coast live oak and tree willows interspersed with Fremont cottonwoods. While this drainage flows in relatively close proximity to the area in which a significant amount of Proposed Project activity will be taking place, project plans do not include construction activities or the discharge of dredge or fill materials within the jurisdictional limits of the drainage. The implementation of mitigation measures and BMPs is expected to limit potential impacts such as sediment flows into this drainage, which will further reduce impacts to a less than significant level.

Protected Trees

Oak trees are a protected resource by both the City of Santa Clarita and Los Angeles County[19]. Under their respective oak tree ordinances, it is illegal to encroach upon, prune, or otherwise damage trees with a 6-inch or greater diameter-at-breast-height (DBH) (Santa Clarita) and 8-inch or greater DBH (Los Angeles County) without prior obtaining a permit to do so. The Los Angles County ordinance contains an exemption related to pruning during routine utility maintenance operations. There are several coast live and valley oaks throughout the alignment of SCE's existing 66 kV sub-transmission lines that are protected by these ordinances. In addition, within the proposed Central Compressor Station site, there is one oak tree that is protected by the County Ordinance. There are also several oak trees and at least one California walnut that may be impacted due to their location immediately adjacent to the proposed Central Compressor Station work area boundary.

4.4.1.5 Regulatory Setting

This section describes the regulatory framework surrounding the Proposed Project site. Discussed here are regulations ranging from the Federal level to local jurisdictions.

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[19] Los Angeles Department of Regional Planning, Chapter 22.56.2050, *Oak Tree Permit Regulations, Los Angeles County* (August 20, 1982, as amended).

Federal Regulations

- Federal Endangered Species Act

  The Federal Endangered Species Act (FESA), administered by the USFWS and National Oceanic and Atmospheric Association Fisheries, Section 9(a)(1)(B),[20] prohibits the "take" of Federally listed Threatened and Endangered fish and wildlife species. However, the take provision does not apply to listed plants and Section 9(a)(2)(B) defers regulatory jurisdiction of listed plants on non-federal lands to the states. Refer to Section 4.4.4.2 for a discussion of state laws regulating impacts to sensitive plant species. FESA (Section 3(19)) defines "take" as any action that would harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any Threatened or Endangered species. While unauthorized take is prohibited, provisions under the FESA allow for authorized 'incidental' take of listed species under certain terms and conditions while conducting otherwise lawful activities. Under the FESA regulatory program, there are two processes by which an applicant can procure an Incidental Take Permit (ITP):

  Section 7 – Applies to a project with a federal nexus, where a federal agency is authorizing, funding, or granting a permit on an activity that may affect listed species; and

  Section 10 – Applies to a project for which there is no federal nexus.

- Clean Water Act

  Wetlands and permanent and intermittent drainages, creeks, and streams are generally subject to the jurisdiction of the USACE under Section 404 of the Federal CWA.[21] By USACE definition, all aquatic or riverine habitats between the "ordinary high water mark" of rivers, creeks, and streams are potentially considered "Waters of the United States (US)" and may fall under USACE jurisdiction. Any discharge of dredge or fill materials into waters of the US, including wetlands, requires the procurement of a permit from the USACE pursuant to Section 404 of the Federal CWA. Discharge of dredge or fill materials includes the placement of dirt, rock, geotextiles, concrete, or culverts.

  The first step of the Section 404 compliance process is to evaluate the presence/absence of Waters of the US through completion of a jurisdictional delineation (JD). There are two options for a project relative to the JD process: a) a "preliminary JD" is a written indication that there may be Waters of the US, including wetlands, on a project site or indication of the approximate location(s) of Waters of the US on a site. A preliminary JD may be utilized in the USACE permit application process. Preliminary JDs are advisory in nature and may not be appealed.

[20] US Code, Title 16, Section 9, *Endangered Species Act*, (1973 as amended).

[21] CFR, Title 33, Section 404, *Clean Water Act*, Navigation and Navigable Waters, Chapter 26 Water Pollution Prevention and Controls, Subchapter IV Permits and Licenses, Section 1344 Permits for dredged or fill material (1977, as amended 1994).

An “approved JD” is a USACE document stating the presence or absence of Waters of the US, including wetlands, on a project site and may include a written statement and map identifying the limits of Waters of the US on a site (a determination that jurisdictional waters are completely absent from a given site is also an “approved JD”). Approved JDs are more formal and is a documented process, which can be appealed through the USACE administrative appeal process.

In June 2007, the USACE and U.S. Environmental Protection Agency issued a guidance document on the definition of a jurisdictional “Waters of the United States” under CWA Section 404. The guidance document was developed to implement the U.S. Supreme Court’s decision in the June 2006 consolidated Rapanos and Carabell cases, which questioned the type of water bodies and wetlands that should be subject to the CWA. The guidance, commonly referred to as the “Rapanos Guidance,” introduces a new national water body and wetland classification scheme that may impact projects that propose activities within Waters of the US.

According to the guidance, Waters of the US are categorically considered to include navigable waters, relatively permanent tributaries to navigable waters, and wetlands adjacent to navigable waters and tributaries. Other waters, including ephemeral tributaries and isolated wetlands, could also be considered a Water of the US if determined on a case-by-case basis to have a “significant nexus” with a navigable water body. The guidance specifically identifies gullies, small washes, and many drainage ditches – all characterized by low volume, infrequent, and short duration flow – as generally non-jurisdictional under the CWA. The USACE will take the lead in implementing the new guidance with EPA involvement in “significant nexus” determinations of water bodies.

- Migratory Bird Treaty Act of 1918

The MBTA[22] protects all migratory birds native to the United States and their nests. This statute prohibits any person, unless permitted by regulations, to

> “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird." (16 U.S.C. 703)

The list of migratory birds includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defines the protected species and excludes all non-native bird species. The statute was amended in 1974 to include Parts of birds, as well as eggs and nests. Thus, it is illegal under the MBTA to directly kill or destroy an active nest of nearly any bird species, not just those listed as threatened or endangered under state or federal ESAs. In addition, activities that would result in the removal or destruction of an active nest, including inducing abandonment, would violate the MBTA.

[22] US Code, Title 16, Section 703-712*, Migratory Bird Treaty Act of 1918*, (1918 as amended)

State Regulations

- California Endangered Species Act

  Section 2080 of the CESA[23] prohibits the take of State-listed Threatened and Endangered species and also protects species that are candidates for listing. CESA is found within Division 3, Chapter 1.5, Article 3 of California Fish and Game Code. California Fish and Game Code defines "take" in Section 86 (found within Division 0.5, Chapter 1, General Definitions) as any action that would hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill any Threatened or Endangered species. If a Proposed Project may result in take of a listed species, an ITP pursuant to Section 2081 of CESA is required from the CDFG. Alternatively, in the case of a Project that is likely to impact species that are both Federally and State listed, the provisions of Section 2080.1 allows the CDFG to review the Federal document in support of the Federal ITP (i.e., the Biological Assessment [BA] document) for 'consistency' with the CESA. If the substantial requirements of CESA are addressed within the Federal BA, it would allow the CDFG to determine that it is consistent with CESA and state requirements. This mechanism of an integrated approach to CESA/FESA compliance precludes the need for a separate State ITP and generally streamlines the process. This process is only applicable for species that are both State and Federally listed.

- California Fish and Game Code

  Drainages. Streambeds are potentially subject to regulation by the CDFG under Sections 1600-1603 of the California Fish and Game Code.[24] Streambeds are defined in the California Code of Regulations (CCR)[25] as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. This definition includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation. CDFG generally asserts that its jurisdiction extends to the edge of the riparian vegetation canopy associated with any stream. The CDFG requires that they be notified of activities within such a stream, including substantially diverting or obstructing the natural flow; substantially changing or using any material from the bed, channel, or bank; depositing or disposing of debris, waste, or other material where it may pass into any river, stream, or lake; and the removal of associated riparian vegetation requires. The CDFG requires a Streambed Alteration Agreement if the activity may substantially adversely affect fish and wildlife resources.

  Protected Wildlife. The Proposed Project would also be subject to the requirements of Sections 3503, 3503.5, and 3513 of the California Fish and Game Code.[26] These regulations protect all

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[23] California Fish and Game Code, Endangered Species Act, Section 2080 (1984).
[24] California Fish and Game Code, Endangered Species Act, Section 1600-1603. Online: http://www.dfg.ca.gov/1600/1600code.html
[25] CCR, Title 14, Chapter 1, Section 1.72.
[26] CCR, Title 14, Chapter 1, Sections 3503 and 3513. Online: http://www.leginfo.ca.gov/cgi-bin/displaycode?section=fgc&group=03001-04000&file=3500-3516

native birds and their nests by making it unlawful to take any bird, their eggs, and active nests, including causing the abandonment of an active nest.

The state of California has also identified several "Fully Protected Species" that may not be taken or possessed at any time, including under incidental circumstances, except in the case of necessary scientific research. These species are listed in Fish and Game Code Sections 3511, 4700, 5050, and 5515. It is not anticipated that any of these Fully Protected Species will be encountered during implementation of the Proposed Project.

Native Plants. Sections 1900 – 1913, known as the Native Plant Protection Act, provides regulatory protection for endangered and rare plants in California. However, Section 1913(b) exempts some activities from NPPA requirements, including "*… the performance by a public agency or a publicly or privately owned public utility of its obligation to provide service to the public, shall not be restricted by this chapter because of the presence of rare or endangered plants,….*" This exemption is subject to a 10 day advance notification.

- California Regional Water Quality Control Board

Clean Water Act. Projects requiring a Section 404 permit also require a CWA, Section 401 Water Quality Certification. The Federal CWA, in Section 401, specifies that states must certify that any activity subject to a permit issued by a Federal Agency, such as the USACE 404 permit, meets all state water quality standards. In California, the State and regional water boards are responsible for certification of activities subject to USACE Section 404 permits. The State's implementing regulations to conduct certifications are codified under the CCR, Title 23 Waters, Sections 3830 through 3869.

Section 402 of the Clean Water Act. Protection of natural resources as defined in the Clean Water Act has been delegated authority to the California Regional Water Quality Control Board. The State Water Resource Control Board (SWRCB) administers a statewide general permit that covers a variety of construction activities that could result in wastewater discharges. Under this General Permit the State issues project-level construction permits for projects that disturb more than an acre of land (sometimes called a Section 402 Permit). Development of a Storm Water Pollution Prevention Plan (SWPPP) is required as part of the permit.

Porter Cologne Water Quality Act. In addition to the CWA, the Porter-Cologne Water Quality Act allows the regional boards to protect the water quality of receiving waters. This Act[27] is the primary state regulation addressing water quality, and waste discharges (including dredged material) on land; and all permitted discharges must be in compliance with the Regional Basin Plan. For the proposed project site, the Act's requirements are implemented by the Los Angeles Regional Water Quality Control Board (LARWQCB).

27 California Water Code, Section 13000 et seq.; CCR, Title 23, Chapter 3, Chapter 15

Local Regulations

- Los Angeles County Draft General Plan – Conservation and Open Space Element

  Chapter 6 of Los Angeles County's Draft General Plan[28] provides a means for the County to "guide the long-range preservation and conservation of the County's natural resources and open space land, and sets policy direction for the open space, natural and energy-related resources of unincorporated Los Angeles County." This section of the General Plan generally defines the County's biological, water, and other natural resources and sets forth goals, policies, and actions to preserve and protect those resources.

  The Draft General Plan has not yet undergone final approval by the Los Angeles County Regional Planning Commission and Board of Supervisors; however, it is anticipated that major components of this section, including goals, policies, and procedures, will remain relatively unchanged upon adoption.

- Preliminary Draft Santa Clarita Valley Area Plan – Conservation and Open Space Element

  The Santa Clarita Valley Area Plan is a supplement to the Los Angeles County General Plan intended to focus on providing a framework for development within unincorporated areas of the Santa Clarita Valley. Chapter 4 of the Area Plan, the Conservation and Open Space Element,[29] is similar to that in the Los Angeles County General Plan, but provides guidelines and procedures for preserving open space and biological, water, and other natural resources that consider the unique geographic and climatic conditions encountered in this area.

  A final version of this Area Plan has yet to be approved by the Los Angeles County Regional Planning Commission and Board of Supervisors. As with the General Plan, though, changes to the goals, policies, and procedures are likely to be minimal as the Area Plan is adopted.

- City of Santa Clarita General Plan – Conservation and Open Space Element

  The Conservation and Open Space Element of the City of Santa Clarita General Plan[30] provides goals and policies for managing open space in the City and preserving the City's and State's natural resources and specific measures for implementing those policies.

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[28] Los Angeles County Department of Regional Planning, *Draft General Plan*, Conservation and Open Space Element. 2008.
[29] Los Angeles County Department of Regional Planning, *Preliminary Draft Santa Clarita Valley Area Plan*, Conservation and Open Space Element. 2008.
[30] City of Santa Clarita, *General Plan*, Conservation and Open Space Element. Adopted June 25, 1991, amended February 23, 1999.

4.4.1.6 Project Description on Biological Resources

This section discusses the potential impacts to biological resources that may result from the implementation of this Proposed Project. It is important to note that a final engineering plan detailing the implementation of this project has not yet been adopted and it is therefore difficult to calculate the precise extent of impacts to plant communities and other biological resources. Some of the impacts discussed below are referred to in general terms and, in the case of calculating acreages of habitat that may be affected, a generous estimation is provided that encompasses the entire Proposed Project study area, including the 25-meter buffer. These acreages are provided in Table 4.4-1. It is likely that actual impacts to vegetation will be less than the acreages provided below.

Direct impacts typically represent the physical alteration (i.e., loss of individuals or habitat degradation) of biological conditions on a project site as a result of project implementation. Indirect impacts are those reasonably foreseeable effects on remaining or adjacent biological resources that are caused by the project subsequent to project implementation over time.

The physical alteration of habitat is not, in itself, a significant impact under CEQA. Significance is determined by comparing physical alteration of habitat to each of the significance threshold criteria defined in the Project impact discussion below. For example, should the alteration of habitat result in the direct or indirect loss or have an otherwise substantial adverse effect on a species identified as a “candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the CDFG or USFWS,” impacts would be considered significant unless a project implements mitigation that would reduce the impact to a less than significant level.

An evaluation of whether an impact on biological resources would be substantial and, therefore, a significant impact must consider both the resource and the CEQA threshold of significance criteria. For example, because of the dependence of most plant and wildlife species on native habitats to satisfy various life cycle requirements, a habitat-based approach that addresses the overall biological value of a particular plant community or habitat area is appropriate when determining whether alteration of that habitat will substantially affect special-status species, sensitive habitats, wetlands, and movement corridors. The relative biological value of a particular habitat area—its functions and values—can be determined by such factors as disturbance history, biological diversity, its importance to particular plant and wildlife species, its uniqueness or sensitivity status, the surrounding environment, and the presence or absence of special-status resources.

However, direct impacts with respect to specific plant and wildlife resources (e.g., active nests and individual plants and wildlife) are also evaluated and discussed when impacts to these resources, in and of themselves, could be considered significant or in conflict with local, State, and Federal statutes or regulations. The significance of impacts with respect to direct impacts on individuals or populations of plant and wildlife species takes into consideration the number of individual plants or animals potentially affected, how common or uncommon the species is (both within a site and from a regional perspective), and the sensitivity status if the species is considered to be of special status by resource agencies. These factors are evaluated based on the results of on-site biological surveys and studies, results of literature and database reviews, discussions with biological experts, and established and recognized ecological and biodiversity theory and assumptions.

It should be noted that potential impacts related to the Proposed Project discussed below will occur only during the construction phase of the Proposed Project. Once the buildings, equipment, and associated support infrastructure have been installed, the operation and maintenance of these facilities will be similar to that currently conducted by SoCalGas and SCE. Therefore, the discussion of impacts in this section is limited only to those that may be encountered during the construction phase of the Proposed Project.

4.4.2 Applicant Proposed Measures

Both SoCalGas and SCE company policies require the implementation of APMs to prevent impacts to biological resources for all construction activities. The following APMs will be implemented during construction related activities:

APM-BR-01: Pre-construction surveys will be conducted for nesting birds and other sensitive biological resources (including special-status wildlife and special-status plant species);

APM-BR-02: Protocol-level, focused pre-construction survey for gnatcatcher, where suitable habitat exists.

APM-BR-03: Exclusionary fencing will be installed around work and laydown/staging areas, where necessary; to prevent inadvertent encroachment into the native habitat adjacent to the required areas of impact. Protective construction fencing and silt fencing will be erected surrounding the work area where it abuts native habitat prior to the start of construction and/or demolition;

APM-BR-04: Biological monitoring will be conducted during construction work in areas in close proximity to native habitat to assure project compliance with all APM’s and Mitigation Measures;

APM-BR-05: Prior to construction, a field survey shall be conducted by a qualified biologist to detect if active nests of bird species protected by the MBTA and/or the California Fish and Game Code are present in the construction zone or within 100 feet (300 feet for raptors) of the construction zone. If detected, a minimum 50-foot exclusionary buffer will be established by temporary flagging or fencing (this distance may be greater depending on the bird species and construction activity, as determined by the biologist) between the nest site and construction activities. Clearing and construction within the fenced area shall be postponed or halted (except for vehicle traffic on existing roads), at the discretion of the biological monitor, until the nest is vacated and juveniles have fledged. The biologist shall serve as a construction monitor during those periods when construction activities occur near active nest areas to ensure that no inadvertent impacts on these nests will occur.

APM-BR-06: Special-status wildlife in-harm’s way may be relocated to native habitat near the work area but outside the impact zone in order to avoid injury or mortality.

APM-BR-07: Pursuant to city of Santa Clarita/Los Angeles County ordinance guidelines, loss or impacts to all native oak trees via trimming or ground disturbance within the dripline shall be avoided using specific measures and/or agency guidance; if impacts cannot be avoided, SoCalGas must submit an Oak Tree Permit Application (including an Oak Tree Report) to Los Angeles County and obtain an Oak Tree Permit prior to construction.

APM-BR-08: If substantial impacts to areas in which Plummer's mariposa lily are located are unavoidable, the Proponent shall consult the CDFG to determine appropriate mitigation procedures and monitoring requirements. However, it is important to note that under Section 1913(B) of the California Fish and Game Code, actions undertaken by an agency or publicly or privately owned public utility to fulfill its obligation to provide service to the public are exempted from take prohibitions under the Native Plant Protection Act.

Because the nature of the Proposed Project involves the replacement of buildings and infrastructure in areas that have been previously disturbed during the original development of these facilities, it is anticipated that impacts to sensitive biological resources will be minimal and will be reduced to a less-than-significant level by the APMs mentioned above in conjunction with the mitigation measure outlined below.

4.4.3 Significance Criteria

According to CEQA significance criteria and the CPUC's PEA checklists, the Proposed Project could cause a potentially significant impact if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

4.4.4 Environmental Impact Analysis

The potential impact to biological resources from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential biological resource impacts, CEQA criteria were evaluated and are discussed separately for construction and operations, by project component, where applicable.

4.4.4.1 Construction Impacts

Proposed Central Compressor Station, Proposed PPL, and Proposed Office Trailer, Guard House Relocation, and Construction Staging Areas

Would the Proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?

Native Vegetation/Special-status Plant Species

As previously discussed in the Special-status Plants subsection of Section 4.4.3.1, Existing Biological Conditions, Plummer's mariposa lily, a CNPS List 1B.2 species, has been identified to the northeast of the Plant Station in which the existing office trailer facility and compressor station will be dismantled and replaced. If the disturbance footprint extends into the areas in which this plant grows or its bulbs are located subsurface, implementation of the Proposed Project could result in the loss of individual plants or bulbs of this species. However, the number of individuals lost in proportion to the overall population of this species would not likely be considered a substantial adverse effect.

The project activities that are proposed to occur within the Plant Station area (locations of proposed office trailer relocation and proposed Central Compressor Station), the construction staging areas, and the soil processing site, P-32, of the Storage Field will likely take place entirely in areas that have been previously disturbed. However, many of those areas have experienced some revegetation of native species either through natural recruitment or planting/ seeding. Table 4.4-1 lists the areas of each plant community that have the potential to be impacted in the Plant Station, construction staging areas, and soil processing site. Based on the final project design, a relatively small amount of native vegetation may be required to be removed to facilitate demolition, construction, and/or the processing of fill. This removal will not be at a scale that will significantly impact the wildlife that utilizes these habitat types.

APM-BR-03 and APM-BR-04 shall be implemented before and during demolition, grading, and construction on the Storage Field property to reduce potential impacts to a less-than-significant level.

Special-status Wildlife Species

The fire that recently affected the Storage Field decreased the quality of native scrub habitat that exists on the steep slopes throughout the property. In addition, the Proposed Project impact areas are, for the most part, developed or otherwise disturbed. Due to these facts and based on the high level of regular activity associated with the operation of the facility, it is unlikely that most sensitive wildlife species would establish a significant population or occur as permanent residents in the Proposed Project impact areas. However, there is some potential that individuals of these species may be present as a transient during implementation of the Proposed Project and may be injured or killed as a result of the Proposed Project activities.

Sensitive aquatic species such as the two-striped garter snake and Coast Range newt are known to occur in Limekiln Canyon Wash, which is in close proximity to the proposed construction in the Plant Station area. Because the Proposed Project will not encroach into the drainage and would not result in the removal of riparian vegetation, impacts to these species will likely be less than significant. The pre-construction surveys and biological monitoring proposed by the project proponent as APM-BR-01 and APM-BR-06 will further reduce the potential that individuals of these species would be impacted in the event that they stray from the riparian corridor. In addition, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to implementation of the project to address the potential for contamination during the course of construction into local drainage areas. The SWPPP will ensure that measures are in place to contain sediment, debris, and other byproducts of the construction process within the boundaries of disturbance. The percent of total impervious surfaces following project development will be comparable to that of the existing facility. Therefore, there will be no significant indirect impacts to sensitive aquatic wildlife resulting from increased runoff from the facility.

With the implementation of APM-BR-01 through APM-BR-05, potential impacts to special-status wildlife species would be evaluated and minimized. If special-status wildlife species are identified in the Proposed Project area, APM-BR-06 would be implemented to reduce impacts to a less than significant level.

Nesting Birds

It is possible that native bird species may utilize the trees, scrub, landscaping, or other areas in the vicinity of the Plant Station and Soils Processing Site to nest during the breeding season, which generally takes place March through August. If construction were to take place during breeding season, impacts to these nesting birds, their eggs, or young could result.

With the implementation of APM-BR-01, the potential impacts to nesting areas would be minimized. If active nests are found, APM-BR-05 would be implemented to reduce impacts to levels below significance.

Would the Proposed Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?

One stretch of riparian habitat, classified as Southern Cottonwood – Willow/Coast Live Oak Woodland, occurs in the Limekiln Canyon Wash drainage to the west of the Plant Station and a small area of Coast Live Oak Woodland occurs to the northeast of the Plant Station. Each of these vegetation types is considered sensitive by the CDFG. Based on the final project design, these areas may be near enough to the construction activities that impacts to native vegetation, such as the trimming of overhanging branches, may result. However, because construction activities will be focused in previously disturbed areas that are currently occupied by existing facility structures, these impacts would be minimal and would not result in the large-scale removal of native habitat. Fencing and signage described in APM-BR-03, as well as on-site biological monitoring would serve to alert construction personnel to the limits of the work area and protect adjacent sensitive habitat.

Due to temporary impacts from construction activities to native habitat for Venturan Coastal Sage Scrub (CSS), the project will be required to mitigate these native communities to avoid a significant impact for the Proposed Project. Through rehabilitation of these native communities, the temporary impacts due to construction activities will be mitigated to less than significant.

Would the Proposed Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The implementation of the Proposed Project would not result in the placement of fill or other significant impacts to the one potentially jurisdictional resource, Limekiln Canyon Wash, in the immediate vicinity of the Storage Field impact areas. As discussed above, minor trimming of riparian vegetation adjacent to the Plant Station work area may be necessary; however, with the implementation of APM-BR-03 and APM-BR-04, impacts would be reduced to a less than significant level due to the confinement of construction to existing disturbed areas and the drainage's location on the periphery of this work area. If required, a 1600 Streambed Alteration Agreement (SAA) Notification Package will be submitted to the CDFG.

Would the Proposed Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife movement corridors are linear landscape elements that serve as linkages between historically connected habitats and natural areas, thereby facilitating wildlife movement between these natural areas. There is a known migration corridor that connects the foothills of the San Gabriel Mountains to the northeast of the 5 and 14 Freeways interchange to the foothills of the Santa Susana Mountains to the west of the 5 Freeway. As discussed above, impacts to native habitat will be limited to the areas immediately surrounding existing areas of disturbance that will be replaced and no large scale removal of vegetation or construction of facilities outside of these disturbed areas is proposed as part of this project. This level of impact would not be significant relative to the function of the wildlife movement corridor.

Would the Proposed Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Both the city of Santa Clarita and Los Angeles County have formal tree protection ordinances for native oak trees, which are considered sensitive resources. As depicted on Figure 4.4-1, there are numerous coast live oak trees present within the Plant Station impact area and based on the final project design, some of these trees may require removal and/or trimming to implement the Proposed Project. With implementation of APM-BR-07, potentially significant impacts to oak trees would be reduced to a less than significant impact.

Would the Proposed Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No such plans have been adopted in the Storage Facility area; therefore the project would not conflict with any such provisions. As such, no impacts would result from implementation of the project.

Proposed Natural Substation

Would construction of the proposed Natural Substation have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?

Native Vegetation/Special-status Plant Species

There were no sensitive plants observed at the proposed SCE Natural Substation study area. The construction activities associated with the proposed SCE Natural Substation will likely take place entirely in areas that have been previously disturbed during the construction and subsequent maintenance of the existing infrastructure. The proposed SCE Natural Substation will measure 270 feet by 122 feet, which will result in permanent impacts to 0.76-acre of vegetation. Table 4.4-1 lists the areas of each plant community that have the potential to be impacted. Based on the final Proposed Project design, a relatively small amount of native vegetation may be required to be removed during Proposed Project implementation. This removal will not be at a scale that will significantly impact the wildlife that utilizes these habitat types.

Concerns regarding impacts to native habitat in areas of the proposed SCE Natural Substation are in line with those addressed above in Construction Impacts - Proposed Central Compressor Station, Proposed PPL, and Proposed Office Trailer, Guard House Relocation, and Construction Staging Areas. With the implementation of APM-BR-01, APM-BR-03 and APM-BR-04 potential impacts would be minimized. MITIGATION-BR-01 will be implemented if significant areas of native habitat are impacted during construction, which will reduce impacts to a less than significant level.

Special-status Animal Species

The disturbed nature of the habitat on the hilltop of the proposed SCE Natural Substation location significantly decreases the potential that this area would support a viable population of sensitive animals. There is some potential that one of these species may be present as a transient during implementation of the Proposed Project and may be taken as a result of Proposed Project activities. APM-BR-01 and APM-BR-03 through APM-BR-06 will be implemented if a special-status animal is likely to be impacted during construction. This will serve to reduce impacts to a less than significant level.

Nesting Birds

It is possible that native bird species may utilize the scrub or man-made structures in the vicinity of the proposed SCE Natural Substation location to nest during the breeding season, which generally takes place March through August. If construction were to take place during breeding season, adverse impacts to these nesting birds, their eggs, or young could result. SCE's existing Avian Protection Plan will be implemented during project construction to reduce and avoid adverse impacts. APM-BR-05 will be implemented if nesting birds have the potential to be impacted during construction. This will reduce impacts to a less than significant level.

*Would construction of the proposed Natural Substation have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?*

No riparian habitat or other sensitive natural community exists in the proposed Natural Substation study area; therefore, there would be no impact.

*Would construction of the proposed Natural Substation have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No wetlands or other jurisdictional features exist in the Natural Substation study area; therefore, there would be no impact.

*Would construction of the proposed Natural Substation interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Wildlife movement corridors are linear landscape elements that serve as linkages between historically connected habitats and natural areas, thereby facilitating wildlife movement between these natural areas. There is a known migration corridor that connects the foothills of the San Gabriel Mountains to the northeast of the 5 and 14 Freeways interchange to the foothills of the Santa Susana Mountains to the west of the 5 Freeway. Construction of the proposed SCE Natural Substation will be limited to previously disturbed areas and no large scale removal of vegetation or construction of facilities outside of these disturbed areas is proposed as part of this project. This level of impact would not be significant relative to the function of the wildlife movement corridor.

*Would construction of the proposed Natural Substation conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No biological resources protected by local policies or ordinances occur in the proposed Natural Substation study area; therefore, there would be no impact.

*Would construction of the proposed Natural Substation conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

No such plans have been adopted in the Proposed Project area; therefore, there would be no impact.

Proposed 66 kV Sub-transmission System Modification

*Would proposed modifications to SCE's 66 kV sub-transmission system have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?*

Native Vegetation/Special-status Plant Species

As previously discussed in the Special-status Plants subsection of Section 4.4.3.1, Existing Biological Conditions, slender mariposa lily, a CNPS List 1B.2 species, has been identified in the vicinity of several locations along the 66 kV alignment in which project activities, including ground disturbance, vegetation clearing, and construction, will be taking place. If the disturbance footprint extends into the areas in which this plant grows or its subsurface bulbs are located, implementation of the proposed project could result in the loss of individual plants or bulbs of this species. However, the number of individuals lost in proportion to the overall population of this species would not likely be considered a substantial adverse effect.

The replacement of the 66 kV support structures will take place entirely in areas that have been previously disturbed during the original construction of the 66 kV sub-transmission lines. However, through natural succession, native plant communities have re-grown at some of these tower locations. Table 4.4-1 lists the areas of each plant community by tower location. In many cases, a relatively small amount of native vegetation will be required to be removed to facilitate the removal of the existing support structures and the construction of the new TSPs. This removal will not be at a scale that will significantly impact the wildlife that utilizes these habitat types.

Concerns regarding impacts to native habitat and species along the SCE 66 kV sub-transmission alignment is in line with those addressed above in Construction Impacts of the proposed Central Compressor Station. With the implementation of APM-BR-01, APM-BR-03, and APM-BR-04, the potential impacts to native habitat would be minimized. If native habitat is impacted during construction APM-BR-06 and MITIGATION-BR-01 would be implemented to reduce impacts to a less-than-significant level.

Special-status Animal Species

As discussed in the Special-status Wildlife subsection of Section 4.4.3.2, Existing Biological Conditions, several sensitive species were observed or have the potential to occur within areas that will be impacted by project construction. While impacts to areas of native vegetation will be minor, in the event that any of these species were present within the work area during construction, there would be potential for injury or mortality.

With the implementation of APM-BR-01, APM-BR-03, and APM-BR-04, the potential impacts to special-status animal species would be minimized. If a special-status animal species has the potential to be impacted during construction APM-BR-06 would be implemented to reduce impacts to a less-than-significant level.

Nesting birds

It is possible that native bird species may utilize the trees, scrub, landscaping, or other areas along the existing SCE 66 kV sub-transmission alignment, to nest during the breeding season, which generally takes place March through August. In fact, two nests, one occupied by a red-tailed hawk, were observed in the lattice structure of two support towers. If construction were to take place during breeding season, impacts to these nesting birds, their eggs, or young could result.

With the implementation of SCE's Avian Protection Plan, APM-BR-01, APM-BR-03, and APM-BR-04, the potential impacts to nesting birds would be minimized. If a nesting bird could be impacted during construction, APM-BR-05 would be implemented to reduce impacts to a less-than-significant level.

Would the proposed SCE 66 kV sub-transmission modifications have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?

One area of riparian habitat, classified as Southern Willow Scrub, to the west of Tower 4-4 may be located in close proximity to the work area such that impacts to native vegetation, such as the trimming of overhanging branches, could occur. However, based on the relatively small work area and the separation of the work area and the riparian corridor, these impacts will be minimal and would not result in the large-scale removal of native habitat.

Areas of Walnut Woodland, a CDFG sensitive community, occur in the vicinity of Towers 14-3 and 14-4. These pockets of habitat are far enough from the work area to avoid impacts from the replacement of the 66 kV support structures.

Concerns regarding impacts to sensitive natural communities along the alignment of the proposed SCE 66 kV sub-transmission modifications are in line with those addressed above in Construction Impacts of the proposed Central Compressor Station. As such, MITIGATION-BR-01 will be implemented in this area to reduce potential impacts to these biological resources to a less-than-significant level.

Would the proposed SCE 66 kV sub-transmission modifications have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The implementation of the Proposed Project would not result in the removal of or significant impacts to jurisdictional resources along the alignment of the proposed SCE 66 kV sub-transmission modifications. As discussed above, minor trimming of riparian vegetation adjacent to Tower 4-4 may be necessary; however, impacts would be less than significant due to the small footprint of the work area and its location outside the limits of the limits of the OHWM; there would be no discharge of fill materials into the waters of the United States.

Would the proposed SCE 66 kV sub-transmission modifications interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife movement corridors are linear landscape elements that serve as linkages between historically connected habitats and natural areas, thereby facilitating wildlife movement between these natural areas. There is a known migration corridor that connects the foothills of the San Gabriel Mountains to the northeast of the 5 and 14 Freeways interchange to the foothills of the Santa Susana Mountains to the west of the 5 Freeway. As discussed above, impacts to native habitat will be limited to the areas immediately surrounding the support towers that will be replaced and no large scale removal of vegetation or construction of facilities is included as part of this proposed project. This level of impact would not be significant relative to the function of the wildlife movement corridor.

Would the proposed SCE 66 kV sub-transmission modifications conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

As noted in Section 4.4.1.1, a segment of the proposed SCE 66 kV sub-transmission lines to be modified, located to the west of the Sunshine Canyon Landfill, passes through the Santa Susana Mountains/Simi Hills SEA as designated by Los Angeles County. The County General Plan mandates that SEAs be maintained in as natural a condition as possible, without considering them formal preserves and prohibiting development within their boundaries. The Proposed Project is not expected to disrupt the SEA's function due to the fact that impacts will primarily be limited to previously disturbed areas and wildlife movement will not be impeded by the replacement of the existing transmission system. In addition, the proposed SCE 66 kV sub-transmission modification will be constructed by SCE, which is exempt from SEATAC consultation per G.O. 131-D. Therefore, impacts would be less than significant to the designated SEA within the alignment of the proposed SCE 66 kV sub-transmission modification.

Would the proposed SCE 66 kV sub-transmission modifications conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No such plans have been adopted in the Proposed Project area. However, as stated in Section 4.9 Land Use, General Plan policy mandates the conservation of SEAs in as viable and natural a condition as possible without treating them as preserves and prohibiting development. The portion of the SCE 66 kV alignment that parallels the boundary line of the city and county of Los Angeles is located within the Santa Susana Mountains/Simi Hills SEA. According to the proposed update to the Los Angeles County General Plan (2008), this SEA is "largely undisturbed by the urbanization that has occurred both to the south (San Fernando Valley) and to the north (Santa Clarita). These wilderness areas are important for maintaining gene flow and wildlife movement between the Santa Monica and San Gabriel Mountains, which are now largely isolated from one another by urban development."

The Proposed Project is not expected to disrupt the SEA's function as a wildlife corridor nor create a geographical barrier for gene flow, as wildlife could move freely underneath the existing 66 kV sub-transmission system. In addition, construction activities at the Storage Facility will primarily occur in previously disturbed areas. The Proposed Project does not affect wildlife culverts under the freeway and any proposed fencing occurs in areas that have previously been fenced. Grading activities may temporarily result in the conversion of natural habitat for pole placement; however these activities are not expected to impede wildlife movement. Therefore, impacts would be less than significant to the designated SEA within the alignment of the proposed SCE 66 kV sub-transmission modification

4.4.5 Mitigation Measures

Construction activities may have a significant impact on native Venturan CSS habitat. The native habitat was identified throughout the Proposed Project site including approximately 1.47 acres within the Plant Station, within the Storage Field, approximately 0.12 acres within the proposed SCE Natural Substation location, and approximately 7.44 acres total within the alignment of the proposed SCE 66 kV sub-transmission modification. The final Proposed Project design impacts significant areas of native habitat, BIO-MM-01 would be implemented to reduce impacts to a less than significant level.

BIO-MM-01 To mitigate potential impacts to the Venturan CSS habitat, a Habitat Restoration Plan will be prepared, detailing plans to replant and/or seed impact areas. The plan will include planting and seeding palettes and a monitoring and contingency program. The Habitat Restoration Plan will be prepared prior to construction and will include details on the monitoring schedule, duration and specific measures required to ensure success of the restoration effort.

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4.13 Public Services

This section describes the existing public services that serve the Proposed Project site and assesses the potential environmental impacts. The Proposed Project would not result in any change to existing fire, police, schools, parks, or other public facilities; Proposed Project components that are not addressed in this section include the installation of upgraded relay systems and equipment at the Newhall, Chatsworth, and San Fernando Substations[1]. Therefore this section provides a general discussion of impacts to public services in accordance with CEQA.

4.13.1 Existing Public Services Setting

Fire Services

The City of Los Angeles Fire Department (LAFD) provides first responder fire protection services to the Storage Field, located within the city of Los Angeles (south of I-5). Specifically, the LAFD Battalion 15 serves the southeastern portion of the Proposed Project site. This battalion has a total of eight fire stations and provides fire protection services to the Northwest San Fernando Valley communities. Due to a mutual agreement between SoCalGas and the LAFD, LAFD responds first to fire emergencies, and the Los Angeles County Fire Department (LACFD) responds second. The LACFD provides fire protection services to the portions of the Proposed Project site located within unincorporated areas of Los Angeles County. Refer to Figure 4.9-1 in Section 4.9, Land Use and Planning, which shows the location of the Proposed Project site in relation to the County, the city of Los Angeles and the city of Santa Clarita. The LACFD, which has a total of 21 Battalions, provides fire services to over four million residents in a 2,296 square-mile service area. The LACFD Battalion Six serves the areas of the Proposed Project site located within unincorporated Los Angeles County. This battalion has a total of 13 fire stations and provides fire protection services to the cities of Canyon Country, Castaic, Chatsworth, Gorman, Newhall, Santa Clarita, Stevenson Ranch, and Valencia.

Police Services

The Los Angeles County Sheriff's Department provides law enforcement services to the portions of the Proposed Project site located within unincorporated areas of Los Angeles County. Specifically, the Santa Clarita Valley Sheriff's Station, located at 23740 Magic Mountain Parkway, Valencia, California, would serve the areas of the Proposed Project site located within unincorporated Los Angeles County. This station is responsible for providing law enforcement services to the city of Santa Clarita, as well as 600 square miles of unincorporated Los Angeles County communities of Stevenson Ranch, Castaic and Gorman with a total population of over 260,000 residents. The City of Los Angeles Police Department provides law enforcement services to the southeastern portion of Proposed Project site located within the city of Los Angeles (south of I-5). In particular, the Devonshire Community Police Station, located at 10250 Etiwanda Avenue, Northridge, California, serves this southeastern portion of the Proposed Project site. The Devonshire Community Police Station serves the neighborhoods of Chatsworth, and Northridge, as well as parts of Canoga Park, Granada Hills, and Winnetka.

[1] Relay replacement at the Chatsworth Substation located in Ventura County will not impact population growth or housing and therefore Ventura County is not included in this CEQA evaluation.

Schools

There are three school districts within the vicinity of the Proposed Project site: The Newhall School District; the William S. Hart Union High School District; and the Los Angeles Unified School District (LAUSD) (Local District Nos. 1 and 2). Located within 50 of the San Fernando Substation is Bishop Alemany High School, located at 11111 North Alemany Drive. Mission Hills, CA. The Bishop Alemany High School is a private Catholic High School. The Newhall School District, comprises 10 elementary schools, serves preschool and Kindergarten through sixth grade children who reside in the Newhall, Valencia, Stevenson Ranch, and Westridge areas of the Santa Clarita Valley. The William S. Hart Union High School District, located in the Santa Clarita Valley, serves over 23,000 students in the district's six comprehensive high schools, a continuation school, early college and middle college high schools, independent study school, six junior high schools, an adult school, and a Regional Occupational Program. Lastly, the LAUSD, covering a total area of 710 square miles, provides Kindergarten through 12th grade levels of education, and special and alternative education in the city of Los Angeles and many other cities (including the city of Santa Clarita) and several unincorporated areas of Los Angeles County.

Parks and Recreation Services

Refer to Section 4.14 Recreation, of this PEA for a detailed discussion of existing parks and recreation facilities in the vicinity of the Proposed Project site.

Library Services

The County of Los Angeles Public Library provides library services in the vicinity of the Proposed Project site. The County of Los Angeles Public Library offers library service to over 3.5 million residents living in unincorporated areas and to residents of 51 of the 88 incorporated cities of Los Angeles County. The service area extends over 3,000 square miles. Supplementing the 7.5 million volume book collection, the County of Los Angeles Public Library also offers magazines, newspapers, microfilm, government publications, and many specialized reference materials including online databases.

4.13.2 Significance Criteria

The significance criteria for assessing the impacts to public services derive from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
    - Fire protection,
    - Police protection,
    - Schools,
    - Parks, or
    - Other public facilities.

4.13.3 Applicant Proposed Measures

There are no Applicant Proposed Measures associated with public resources.

4.13.4 Environmental Impact Assessment

The potential impact to public services from construction and operation of the Proposed Project was evaluated using the stated CEQA significance criteria and is presented in this section. For the purpose of presenting potential impacts to public services, CEQA criteria were evaluated and are discussed separately for construction and operations

Construction Impacts

Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities?

The short-term construction activities would not require the expansion or addition of fire protection facilities in the Proposed Project area.

The Proposed Project includes: constructing and installing a proposed Central Compressor Station consisting of three new electric-driven compression trains; installing a proposed PPL from a proposed SCE Natural Substation to the proposed Central Compressor Station; relocating existing on-site office trailers and guard house; modifying the existing SCE 66 kV sub-transmission system; constructing a proposed SCE Natural Substation; and upgrading three existing substations to accommodate the Proposed Project.

The Proposed Project may have temporary construction impacts to Bishop Alemany High School and Brand Park where existing poles will be replaced with TSP's. Impacts will be localized to the area of the pole replacement and will not result in any permanent change to the park size or access, or interrupt school activities. To minimize impacts due to construction at the school and park, SCE will schedule as many of the construction activities associated with these public features as feasible during periods when school is not in session, or low park visitor volume (e.g., non-weekend periods).

Construction activities would be temporary and of short duration, in which no permanent accommodations for construction workers would be needed. It is anticipated that most of the construction jobs would be filled by the existing area labor force. Construction of the Proposed Project is unlikely to require the need for local law enforcement service and would not create a need for new or physically altered police facilities. In addition, construction of the Proposed Project would not result in increased school enrollment or create a need for new or additional school facilities. Similarly, construction of Proposed Project would not result in increased library use or the need for new or additional library facilities.

Construction of the Proposed Project would thus have a less than significant impact to public services. The Proposed Project construction impacts to parks and recreation services are evaluated in Section 4.14 Recreation.

Operation Impacts

Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities?

Operation of the Proposed Project would consist of routine inspection and maintenance of Project facilities. Implementation of the Proposed Project would not result in changes that would require additional workers/employees at SCE or SoCalGas. Thus, operations activities are unlikely to create a need for additional public services.

In addition, the Proposed Project does not include the construction of any residential uses and therefore is not anticipated to indirectly induce population growth in the area. Thus, the Proposed Project would not generate a need for new schools, libraries, or other public services. Operation of the Proposed Project would therefore result in no significant, adverse impact to public services. The Proposed Project operation impacts to parks and recreation services are evaluated in Section 4.14 Recreation.

4.13.5 Mitigation Measures

The Proposed Project was determined to have **no impact** due to construction and operation; therefore no mitigation is required or proposed.

4.13.6 References

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5.0 Detailed Discussion of Significant Impacts

The analysis contained in this PEA has determined that no potential for significant environmental impacts will result from operation of the Proposed Project. All impacts from operations either have no impact or are less than significant without any required mitigation. Moreover in at least two environmental resource areas, air quality and traffic, permanent improvements to the environment will result from operation of the Proposed Project. The Proposed Project will result in the permanent cessation of three antiquated jet turbine engines that are contributors to a source of NOx emissions within the South Coast Air Basin. Also, the relocation of the guard house will permanently improve traffic flow in the vicinity of the Storage Field and will reduce future road congestion from vehicles accessing the facility.

Two environmental resource areas were determined to have potentially significant impacts associated with construction of the Proposed Project. For the areas of Air Quality and Biological Resources, specific mitigation measures designed to avoid and/or minimize potentially significant environmental impacts to a less than significant level are proposed. With the implementation of specific mitigation measures the Proposed Project will not result in a significant environmental impact for any environmental resource. In addition, during development of this PEA SoCalGas and SCE have developed a list of APMs that will further reduce environmental impacts and ensure environmental resource protection. Mitigation measures and APMs are presented in this section, along with discussion of growth-inducing impacts and a discussion of GHG emission reductions.

5.1 Proposed Measures to Minimize Environmental Impacts

5.1.1 Mitigation Monitoring Plan

When a public agency adopts a mitigated negative declaration in conjunction with approving a project, the lead agency shall adopt a program for monitoring or reporting on the measures it has imposed to mitigate or avoid significant adverse environmental effects. The reporting or monitoring program shall be designed to ensure compliance during project implementation. Therefore, pursuant to the requirements of the Public Resources Code (PRC) §21081.6, and CEQA Guidelines §15097, SoCalGas will establish a plan to monitor project compliance with those measures proposed or adopted as conditions of approval for the Proposed Project.

SoCalGas and SCE understand the importance of assigning roles and responsibilities to the measures proposed in this PEA to reduce environmental impacts. To assure implementation of these measures, and compliance with all construction requirements, SoCalGas will develop a Construction Mitigation Plan (CMP) that will be implemented by a Compliance Manager (CM) during construction of the Proposed Project.

5.1.2 Mitigation Measures Proposed to Minimize Significant Effects

Mitigation is proposed to reduce potentially significant environmental impacts due to construction of the Proposed Project for Air Quality and Biological Resources. As stated above, no mitigation is required for operation of the Proposed Project. The proposed mitigation measures are described below.

5.1.2.1 Air Quality

Peak daily emissions of nitrogen oxides (NO_X) exceed SCAQMD's construction significance threshold of 100 pounds per day (lbs/day) for NO_X due to the combustion of fuel (primarily diesel) in construction equipment. These emissions were determined to have a potentially significant air quality impact that could be mitigated to below a level of significance by applying existing NOx allocations (credits) to offset emission increases due to short-term construction exceedances. The SCAQMD has successfully allowed the use of credits to offset temporary emission increase on a year-by-year basis for mitigation pursuant to CEQA.

5.1.2.2 Biological Resources

Construction activities will create temporary disturbances to Native Venturan Coastal Sage Scrub habitat. The native habitat was identified throughout the Proposed Project site including approximately 1.47 acres within the Plant Station, within the Storage Field, approximately 0.12 acres within the proposed SCE Natural Substation location, and approximately 7.44 acres total within the alignment of the proposed SCE 66 kV sub-transmission modification.

Table 5.1-1 shows the proposed mitigation for each of the resource areas found to have potentially significant impacts. No mitigation measures have been identified in this PEA for which SCE is a responsible party.

Table 5.1-1 Summary of Mitigation Measures

Resource Area	Proposed Mitigation Measure Description	Responsible Party
Air Quality (AQ) – Construction		
AQ-MM-01	Prior to construction, the Proponent will mitigate construction emissions of NOx by purchasing Regional Clean Air Incentives Market (RECLAIM) Trading Credits (RTCs) for every pound of NOx emissions in excess of the construction threshold of 100 lbs/day. The SCAQMD has accepted the use of RTC's for other projects as mitigation for emission increases due to construction activities. The Proponent will be required to track actual daily emissions during construction according to a mitigation monitoring plan, which will require maintaining records of equipment and vehicle usage.	SoCalGas
Biological Resources (BR) - Construction		
BIO-MM-01	To mitigate potential impacts to the Venturan Coastal Sage Scrub habitat (VSS), a Habitat Restoration Plan will be prepared, detailing plans to replant and/or seed affected areas of VSS. The plan will include planting and seeding palettes and a monitoring and contingency program. The Habitat Restoration Plan will be prepared prior to construction and will include details on the monitoring schedule, duration and specific measures required to ensure success of the restoration effort.	SoCalGas

5.1.3 Summary of Applicant Proposed Measures

The Proposed Project includes various design features, or APMs, that have been proposed by SoCalGas and SCE as measures to be incorporated into the project design to avoid and minimize impacts to various environmental resource areas. APMs include BMPs and applicable permit and regulatory requirements for construction and operation. These measures are described in detail in Chapters 3 and 4 of this PEA. A summary of APMs is presented in Table 5.2-2, along with identification of the responsible parties (SoCalGas, SCE, or both). Whatever the administering utility, SoCalGas is the project Proponent and will contract with a compliance management services firm to assure implementation of the Construction Mitigation Plan.

As noted in the Executive Summary, SCE will be filing an Advice Letter in connection with GO-131-D Exemption F to construct the new and modified electric facilities required to provide electric service to the proposed Central Compressor Station and other facilities proposed within the Storage Field. SCE's Advice Letter will reference the final CEQA document certified by the CPUC as well as the final decision rendered by the CPUC for the Proposed Project. Accordingly, SCE has stated that it will comply with the APMs proposed in this PEA as well as any other appropriate measures and/or conditions relating to SCE facilities required by the CPUC in connection with approval of the Proposed Project. SCE and SoCalGas intend to work closely to ensure for effective APM and mitigation measure coordination and implementation.

Table 5.1-2 Summary of Applicant Proposed Measures

Summary of APMs and Reference		
Resource Area	**Applicant Proposed Measure Description**	**Responsible Party**
Aesthetics (A) - Construction		
APM-AE-01 Night Lighting	Construction activities occurring at night will use lighting to protect the safety of the construction workers, but orient the lights to minimize their effect on any nearby sensitive receptors.	SCE
Air Quality (AQ) – Construction		
APM-AQ-01 Equipment Maintenance	Equipment shall be maintained in good condition and engines kept in proper tune as per manufacturers' specifications.	SoCalGas/SCE
APM-AQ-02 Efficient Scheduling	Staff and daily construction activities will be scheduled efficiently to minimize the use of unnecessary/duplicate equipment when possible.	SoCalGas/SCE
APM-AQ-03 Site Prep Minimization	The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.	SoCalGas/SCE
APM-AQ-04 Site Prep Watering	Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.	SoCalGas/SCE
APM-AQ-05 Speed Control	Signs shall be posted on the Plant Station along designated travel routes limiting traffic to 15 miles per hour or less.	SoCalGas
APM-AQ-06 Fugitive Dust	During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site.	SoCalGas/SCE
APM-AQ-7 Sweeping	Paved road surfaces shall use vacuum sweeping and/or water flushing to remove buildup of loose material to control dust emissions from travel on the paved access road (including adjacent public streets impacted by construction activities) and paved parking areas.	SoCalGas

Table 5.1-2 Summary of Applicant Proposed Measures

Summary of APMs and Reference		
Resource Area	**Applicant Proposed Measure Description**	**Responsible Party**
Biological Resources (BR) - Construction		
APM-BR-01 Pre-construction Survey	Pre-construction surveys will be conducted for nesting birds and other sensitive biological resources.	SoCalGas/SCE
APM-BR-02 Focused Survey	Focused protocol surveys will be conducted for the gnatcatcher where suitable habitat is within the Proposed Project area.	SoCalGas/SCE
APM-BR-03 Fencing	Exclusionary fencing will be installed around work and laydown areas, where necessary. Brightly colored construction fencing and/or silt fencing will be erected surrounding the work area where it abuts native habitat prior to the start of construction and/or demolition.	SoCalGas/SCE
APM-BR-04 Bio-monitoring	Biological monitoring will be conducted in areas in close proximity to native vegetation to eliminate potential impacts.	SoCalGas/SCE
Cultural Resources (CR) – Construction		
APM-CR-01 Pull and Tension Sites	The Proposed Project has yet to identify pull and tension sites where conductor stringing activities will take place. These locations are approximately 300 feet within an existing SCE easement by 100 feet in size, and require level areas to allow for maneuvering of the equipment. Where possible, these locations will be located on existing level areas and existing roads to minimize the need for grading and cleanup. A supplemental archaeological survey and report will be completed once these locations have been identified.	SCE
APM-CR-02 San Fernando Monitoring	Construction monitoring may be required in the vicinity of the San Fernando Substation due to the proximity of the San Fernando Mission and the possibility for subsurface archaeological materials to be encountered.	SCE
APM-CR-03 Historic Record	A HAER shall be prepared prior to removal of Kern River One Towers used within the existing SCE 66 kV alignment	SCE
APM-CR-04 Unidentified Archeological Findings	If previously unidentified archaeological resources are unearthed during construction activities, construction would be halted in that area and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. The archaeologist would recommend appropriate measures to record, preserve or recover the resources.	SoCalGas/SCE

Table 5.1-2 Summary of Applicant Proposed Measures

Summary of APMs and Reference		
Resource Area	**Applicant Proposed Measure Description**	**Responsible Party**
APM-CR-05 Public Resources	If human remains are encountered during construction or any other phase of development, work in the area of the discovery must be halted in that area and directed away from the discovery. No further disturbance would occur until the County Coroner makes the necessary findings as to origin pursuant to Public Resources Code 5097.98-99, Health and Safety Code 7050.5.	SoCalGas/SCE
Geology, Soils, and Seismicity (GS) - Construction		
APM-GS-01 Seismic Engineering	Construction phase procedures and the engineering design and operational procedures for the proposed Central Compressor Station will incorporate measures for fire prevention and detection in order to lower the risk of initiating wildland fires.	SoCalGas
APM-GS-02 Geotechnical Investigation	Construction procedures will be conducted as discussed in the recommendations section of the Preliminary Geotechnical Investigation Report prepared by Globus, 2006, in order to mitigate impacts related to unstable geologic conditions. In addition, a site-specific geotechnical investigation is proposed which will provide information on the potential geological hazards.	SoCalGas
APM-GS-03 UBC Standards	SoCalGas will build all structures and facilities associated with the Proposed Project in compliance with the requirements of the State of California and according to UBC standards for Seismic Risk Zone IV.	SoCalGas
Hazards and Hazardous Materials (HH) – Construction and Operation		
APM-HH-01 FAA Consultation	SCE will consult with the FAA as part of the proposed Project design phase if elevated structures such as TSPs are determined will pose a potential threat to air traffic.	SCE
APM-HH-02 Fire Prevention	Construction phase procedures and the engineering design and operational procedures for the proposed Central Compressor Station will incorporate measures for fire prevention and detection in order to lower the risk of initiating wildland fires.	SoCalGas
APM-HH-03 PPL Prevention	SoCalGas will inspect and maintain the PPL for the purpose of reducing wildfire hazards.	SoCalGas
APM-HH-04 Spill Prevention	Construction procedures will be implemented in order to minimize the potential for hazardous material spills and releases.	SoCalGas/SCE

Table 5.1-2 Summary of Applicant Proposed Measures

Summary of APMs and Reference		
Resource Area	**Applicant Proposed Measure Description**	**Responsible Party**
Noise (N) - Construction		
APM-N-01 Construction Hours	All construction activities occurring in association with the Proposed Project, would operate within the allowable construction hours as determined by the applicable local agency and presented earlier in this document where feasible.	SCE
APM-N-02 Noise Control Plan	A noise control plan would be prepared for all pole installation/replacement and substation modifications.	SCE
APM-N-03 Residential Notification	SCE would notify all sensitive receptors within 300 feet of construction of the potential to experience significant noise levels during construction.	SCE
Transportation and Traffic (TT) – Construction and Operation		
APM-TT-01 Commuter Plan	The Proponent will implement a Commuter Plan that includes a designated off-site parking area which has adequate parking capacity for the maximum 150 workers, and a shuttle that will transport worker crews, approximately ten workers per trip, from the parking area to the work site.	SoCalGas
APM-TT-02 Traffic Control Plan	A traffic control plan will be prepared in accordance with the latest version of the Work Area Traffic Control Handbook (WATCH Manual), created by the California Joint Utility Traffic Control Commission, and will be implemented by SoCalGas and SCE where appropriate.	SoCalGas/SCE
Utilities (US) – Construction		
APM-US-01 Material Recycling	Construction of the Proposed Project will result in the generation of various non-hazardous waste materials, including wood, soil, vegetation, and sanitation waste (portable toilets). These materials will either be re-used at the construction site (e.g., clean soil used for backfill) or disposed of at an appropriately licensed off-site facility.	SoCalGas/SCE
APM-US-02 Pole Recycling	Construction activities will generate utility polls and other treated wood waste. This waste will either be reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, or disposed of in the lined portion of a RWQCB-certified municipal landfill.	SCE

Table 5.1-2 Summary of Applicant Proposed Measures

Summary of APMs and Reference		
Resource Area	**Applicant Proposed Measure Description**	**Responsible Party**
APM-US-03 Soil Processing	Soils generated during excavation and grading activities which are or are suspected to be contaminated with oil or other hazardous materials; or materials resulting from spill cleanups; will be characterized and disposed of off-site at an appropriately licensed waste facility. There are no known contaminated soils located at any of the Proposed Project construction locations.	SoCalGas/SCE
APM-US-04 Hazardous Materials	All hazardous and non-hazardous wastes generated during operation of the Proposed Project (e.g. waste oil and gas condensates from the proposed Central Compressor Station) will be classified and managed in accordance with federal and state regulations and site-specific permits.	SoCalGas/SCE

5.2 Growth-Inducing Impacts

The Proposed Project has been determined to be less than significant with no mitigation required. The basis of this determination is the following:

- The Proposed Project does not involve the creation of any community facilities or public roads that would provide new access to undeveloped or under-developed areas, or extend public service to an area presently not served by electricity.

- The Proposed Project would not provide a new source of electricity or gas nor would it provide service/utility connections to off-site uses. Implementation of the Proposed Project would not encourage nor facilitate other activities that could significantly affect the environment either individually or cumulatively.

- Construction and operation of the Proposed Project would not affect employment in the Proposed Project area. If contract workers were employed, they would not cause growth in the Proposed Project area due to the short-term and temporary nature of their employment. The Proposed Project would require routine maintenance and emergency repair, but would not require additional full-time personnel than currently exists. In addition, the Proposed Project does not include the construction of any residential uses and therefore would not directly foster population growth. The Proposed Project would therefore not result in directly or indirectly fostering economic or population growth or construction of additional housing in the surrounding area.

- Public services and utilities are already provided in the Proposed Project area and extensions or expansions of those facilities would be limited to service/utility connections at the SoCalGas Storage Field site for proposed on-site uses. No service/utility connections would be provided to other off-site uses and the service/utility connections would be sized to serve only the Proposed Project site. Therefore, implementation of the Proposed Project would not result in the removal of any impediments to growth in the area

5.3 Greenhouse Gas Applicant Proposed Measures

5.3.1 Greenhouse Gas Emissions Analysis

Greenhouse gases (GHGs) that contribute to climate change are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). The global warming potentials of these pollutants are usually quantified by normalizing their rates to an equivalent CO_2 emission rate (CO_2(eq)).

GHG emissions during construction of the Proposed Project will be generated by construction equipment and motor vehicle fuel combustion. During operation, GHG emissions will be generated by employee commuting to the proposed SCE Natural Substation and the use of electricity by the new motor driven compressors. GHG emissions during the Proposed Project operations will also include leakage of sulfur hexafluoride (SF_6), an insulating gas used in the new circuit breakers that will be installed at the substations. A greenhouse gas analysis and discussion is provided in Section 4.3 Air Quality and detailed emission calculations are provided in Appendix B.1.

Table 5.3-1 presents the construction GHG emissions and the net operational GHG emissions. Net operational emissions include the decrease in GHG emissions from the removal of the existing natural gas jet turbines. As can be seen from the table, the sum of the total construction GHG emissions amortized over 30 years and the operational GHG emissions from the Proposed Project are well below current GHG emission levels, compared on a potential to emit basis.

Table 5.3-1 Greenhouse Gas Emissions Summary

Source	CO_2e
Construction	
Equipment Exhaust (MT)	4,792
Motor Vehicle Exhaust (MT)	1,663
Total Construction Emissions (MT)	***6,455***
Total Construction Emissions Amortized over 30 years (MT/year)	***213***
Operation	
SF_6 Leakage (MT/year)	54
Motor Vehicle Exhaust (MT/year)	4
Compressor Electricity Use (MT/year)	138,709
Potential GHG Emissions from Current Project (MT/year)	***138,766***
Jet Turbine D14 Operation (MT/year)	(69,789)
Jet Turbine D15 Operation (MT/year)	(69,789)
Jet Turbine D16 Operation (MT/year)	(69,789)
Decrease in GHG due to Removal of Turbines (MT/year)	(209,368)
Net Operational GHG Emissions (MT/year)	***(70,920)***
Total Project GHG Emissions (MT/year)	**(70,825)** [1]

[1] The Proposed Project would provide a net benefit in greenhouse gas emissions due to removing the existing TDCs from service (based on potential to emit from construction and operation of the Proposed Project). As shown in Table 5.3-1 removing the TDCs from service results in gross reduction of up to 209,368 MT of CO_2e per year, and a net reduction of up to 70,825 MT of CO_2e per year.

5.3.2 Greenhouse Gas Emission Reduction Program

SCE voluntarily reports SF_6 gas emissions and has developed measures to monitor and prevent leakage. SCE currently tracks SF_6 gas leakage on a system-wide basis. SCE SF_6 Gas Management Guidelines require proper documentation and control of SF_6 gas inventories, whether in equipment or in cylinders. Inventories are documented on both a quarterly and a yearly basis. SCE assumes that any SF_6 gas that is purchased and not used to fill new equipment is needed to replace SF_6 gas that has inadvertently leaked from equipment already in service. This allows SCE to track and manage SF_6 gas emissions.

SCE currently voluntarily reports these emissions to the California Climate Action Registry, which was created by the California legislature to help companies track and reduce greenhouse gas emissions.

SCE has taken proactive steps in the effort to minimize greenhouse gas emissions since 1997. In 1997, SCE established an SF_6 Gas Resource Team to address issues pertaining to the environmental impacts of SF_6. The team developed the Gas Management Guidelines that allow for rapid location and repair of equipment leaking SF_6 gas. In addition, in 2001, SCE's parent organization, Edison International, joined the US Environmental Protection Agency's voluntary SF_6 gas management program, committing SCE to join the national effort to minimize emissions of this greenhouse gas. Importantly, SCE's SF_6 emissions in 2006 were 41 percent less than in 1999, while the inventory of equipment containing SF_6 gas actually increased by 27percent during the same time period.

SCE has made a significant investment in not only improving its SF_6 gas management practices but also purchasing state-of-the-art gas handling equipment that minimizes SF_6 leakage. The new equipment has improved sealing designs that virtually eliminate possible sources of leakage. SCE has also addressed SF_6 leakage on older equipment by performing repairs and replacing antiquated equipment through its infrastructure replacement program.

It is expected that the proposed SCE Natural Substation and the other SCE substation modifications required as part of the Proposed Project involving circuit breaker replacement would result in minimal amount of SF_6 leakage as a result of the state-of-the-art equipment and SCE's SF_6 gas management practices. Pursuant to its existing practices, SCE would be reducing potential greenhouse gas impacts due to the SCE substation components of the Proposed Project to the greatest extent practicable.

6.0 Alternatives

An important aspect of the environmental review process is the identification and assessment of a reasonable range of alternatives that have the potential for avoiding or minimizing the impacts of the Proposed Project while sill achieving the project objectives. This section compares the environmental impacts of the proposed project alternatives assessed for the Proposed Project for the California Public Utilities Commission (CPUC) review.

The Proposed Project has the following objectives:

1. Reduce the potential for interruptions in the ability to store gas in the Storage Field, by replacing the obsolete TDC compressor station.

2. Meet the terms of the SA between SoCalGas and parties to Phase I of the 2009 BCAP (D.08-12-020). The SA requires that SoCalGas replace the TDCs and expand the overall injection capacity at the field by approximately 145 million cubic feet per day (MMcfd) in a timely manner.

3. Convert the compression from the Storage Field from natural gas to electric.

4. Design and construct a new electric compressor station and all necessary related infrastructure to increase the injection capacity at the Storage Field by approximately 145 MMcfd.

5. Provide improved vehicle access to the Storage Field by relocating and updating the existing guard house; relocate and update existing office trailers in close proximity to the current TDC station and Storage Field facilities; preserve other on-site facilities and minimize changes to Storage Field facilities where feasible and practicable.

6. Ensure successful conversion to electric compression prior to decommissioning the existing TDCs to minimize the potential for gas supply service interruptions after construction of the Proposed Project.

These proposed project objectives all support the overall need for a reliable, efficient and cost-effective gas supply. The Proposed Project addresses these objectives by 1) designing, constructing and operating a new, higher-capacity gas storage compressor station and 2) powering the new compressor station with electricity as opposed to natural gas and incorporating technologies such as variable frequency drives (VFD) into its design.

6.1 Alternatives Evaluated in the PEA

This section describes a reasonable range of project alternatives that could achieve the designed project objectives. The evaluation addresses the following alternatives:

- No Project Alternative
- Alternate location for the proposed Central Compressor Station
- Alternate compressor drive type
- No guard house relocation alternative
- Alternate location for the proposed SCE Natural Substation
- Alternative SCE 16 kV distribution service to the proposed Central Compressor Station
- Alternate two-line configuration for proposed SCE 66 kV sub-transmission modification

The CPUC Checklist developed for underground gas storage projects includes several components that are not applicable to the Proposed Project, including alternative well-head sites, alternative drilling sites, and alternative pipeline alignments. Alternatives are not included in this analysis for the aforementioned components because they are not part of the Proposed Project design.

6.1.1 No Project Alternative

CEQA Guidelines Section 15126.6 (e) requires consideration of the environmental consequences of the Proposed Project not being constructed. The purpose of describing and analyzing the No Project alternative is to allow a comparison of the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project.

A No Project Alternative would not meet the overall project objective of meeting the SoCalGas-CPUC settlement agreement requiring that the existing Aliso Canyon Gas Storage Facility compressor station be replaced with an upgraded facility, nor would it meet any other Project objective.

If the Proposed Project were not constructed, the existing land uses at the Proposed Project sites would likely remain in their current condition and the present uses would continue. No potentially significant impacts would occur under the No Project alternative.

6.1.2 Proposed Central Compressor Station Alternatives

Alternate Location

One additional site was assessed to evaluate the impacts and feasibility for placement of the proposed Central Compressor Station in an alternate location.

Alternate Site Description – The alternate site would be an in-place replacement of the existing TDC station. The existing TDC station is located within the Plant Station, approximately 1300 feet east of the proposed SCE Natural Substation.

Alternate Evaluation – The alternate compressor station location would limit service reliability by removing the existing TDC station from service while testing the reliability of the new equipment. Therefore, the alternate location would not meet one of the primary goals of the Proposed Project which is to increase service reliability. The existing TDC station will remain in place for a minimum of one injection field cycle in order to evaluate the capabilities of the proposed VFD compressors and to provide backup services in cases of VFD failure.

Alternate Compressor Drive Type

As an alternative to VFD motor-driven compressors, turbine driven compressors were evaluated to determine the feasibility and overall environmental impacts of an alternative compressor drive type.

Alternate Turbine-driven Compressor Description – The alternate turbine-driven compressors would be similar to the existing TDC configuration, but with larger capacity. The turbines would combust natural gas in order to drive the compressors and would be located within the Plant Station.

Alternate Evaluation – The alternative of using turbine-driven compressors in the proposed Central Compressor Station has roughly equivalent environmental impacts for the Proposed Project. Although this alternative eliminates a number of impacts relative to the installation and modification of electrical service, combustion emissions from the gas turbines, which do not occur with the Proposed Project, would be emitted throughout the operating life of the proposed Central Compressor Station. Moreover, major source air permits would be required for the new combustion turbines. Due to a current moratorium on such new permits within the South Coast Air Quality Management District it is unknown when or if these permits could actually be obtained; but for purposes of evaluating the alternative it is assumed that the permits could be obtained. The turbine-driven compressors were not chosen for the Proposed Project due to environmental/permit concerns, Selective Catalytic Reduction (SCR)/Continuous Emissions Monitoring requirements, operability and reliability issues, operation and maintenance costs, large plot size, lengthy start/stop cycling time, and start-up and shut-down procedures. Motor drives were chosen for the Proposed Project due to the existing electrical service that traverses the Storage Field property, reduced air quality permitting requirements, no SCR requirements and higher reliability and availability.

6.1.3 No Guard House Relocation Alternative

No Relocation Alternative

The current location of the guard house was evaluated to determine the overall transportation and congestion impacts of not relocating the facility 500 feet north of the Storage Field entrance.

Alternate Description – The guard house is currently located at the base of the Storage Field entrance near the intersection of Limekiln Canyon Road and Sesnon Boulevard.

Alternate Evaluation - The proximity of the guard house to Sesnon Boulevard creates excessive traffic congestion at the facility entrance and on Sesnon Boulevard during regular operations and construction activities. The ”no relocation” alternative was not chosen because it does not relieve congestion or increase traffic flow for the facility during heavy traffic periods and creates future congestion issues during construction of the Proposed Project.

6.1.4 Proposed SCE Natural Substation Alternatives

Alternate Location

One additional site was evaluated to assess the environmental and economic impacts of placement of the proposed SCE Natural Substation in an alternate location.

Alternate Location Description – The alternate location would be a previously disturbed location approximately 900 feet east of the Plant Station adjacent to an existing gravity feed water tower.

Alternate Evaluation – The alternate substation location would include widening the existing access road to allow for construction vehicle access and material delivery, excavation and grading of the entire site, and relocating the existing water tank to provide adequate space for the substation, perimeter fencing, and site access. The alternative substation location has similar environmental impacts as that of the Proposed Project; however, the hilltop access to the proposed location would not be accessible by the existing roadway for transportation of the transformers. Similarly, transportation of the transformers via helicopter would be prohibitive due to weight restrictions. A suitable hilltop location for the substation, that would allow the existing water tank to remain a gravity feed, was not identified at the proposed alternate location. In addition, the proposed alternate location is in close proximity to the proposed Central Compressor station and would interfere with emergency water and fire services. Therefore, the final design and engineering evaluation determined the alternate location to be unsuitable for the proposed SCE Natural Substation.

6.1.5 Alternative Electrical Service

Alternate Distribution Service

An alternative to the proposed SCE 66 kV sub-transmission modification, proposed to service the new VFD compressors, is the use of a modified SCE 16 kV distribution circuit, known as the Gavin Circuit.

Alternate Description -The Storage Field currently receives electrical service through the existing SCE Gavin Circuit. The alignment originates at the Newhall Substation and is part of SCE’s distribution infrastructure traversing a variety of city streets and rights-of-way where it serves SoCalGas at the Ward Substation on the SoCalGas property.

Alternate Evaluation - As an alternative to modifying the existing SCE 66 kV sub-transmission circuit that traverses SoCalGas’s property from the Newhall Substation and constructing the proposed SCE Natural Substation at the end of the Chatsworth Tap running from the San Fernando Substation, up to 51 MVA of base power could be delivered by installing three new 16 kV distribution circuits from the Newhall

Substation to the proposed Central Compressor Station location. Adding these three new 16 kV distribution circuits would involve the following:

- Extending the 66 kV rack and adding a new 66 kV bank breaker, adding two 56 MVA, 66/16 kV transformer, two 4.8 MVAR, 16 kV capacitor banks, extending the 16 kV switchrack, and installing a 16 kV bank breaker, and three new 16 kV line breakers and other equipment installed at the Newhall Substation in order to carry the three new circuits;

- From the Newhall Substation, install a new duct bank consisting of six 5" conduits fully encased in 3" of concrete and six runs of three single conductor 1000 kcmil AL Jacketed Concentric Neutral (JCN) cable, related underground structures, switches, splices, etc., underground south along Wiley Canyon Road, beneath the I-5 freeway and along The Old Road;

- The three new circuits would rise up poles located on the Old Road, east of the 5 FWY and terminate to three new overhead circuits consisting of three 653.9 ACSR conductors each. These three new circuits were proposed to follow the path of the existing Gavin 16 kV distribution circuit and would run long a series of new rebuilt aboveground power poles or on a new set of poles immediately adjacent to the existing Gavin 16 kV circuit pole line, south into Newhall Canyon;

- Replace all the distribution poles along the existing 16 kV Gavin circuit alignment which runs west from the I-5 corridor to the Storage Facility, in order to handle the three new 16 kV circuits; and

- Dip underground and install the same underground infrastructure as mentioned above into a new 16 kV customer switchgear line to be operated in a Self Restoring Loop Configuration. (Each of the three new 16 kV distribution circuits would be metered individually and totalized and would be paralleled through the customer switchgear.) This would replace the existing 16 kV SoCalGas Metered Service.

- Upgrade the existing SoCalGas 16 kV facilities within the Storage Field in order to handle the three new 16 kV circuits; and from there connect the service to the proposed Central Compressor Station.

Compared to the Proposed Project, this alternative would eliminate all proposed modifications along the 66 kV alignment, including the work at the Newhall, Chatsworth, and San Fernando Substations; and eliminates the requirement to construct the proposed SCE Natural substation at the Aliso Canyon facility. However, the available short circuit duty from the 16 kV design is roughly one fifteenth the available short circuit duty studied in the original 66 kV Method of Service Study. This will create significant engineering challenges to start the three new compressor motors while operating within SCE's maximum allowable flicker criteria. Also, this design can support a maximum load of 51 MVA, which may not be enough to accommodate the entire SoCalGas Load, and will allow no room for any possible future load growth. It is estimated that multiple 16 kV capacitor units would need to be installed and operated within the maximum allowable flicker criteria, which in turn, would result in a very complex system to regulate voltage under a vast range of load conditions. Lastly, this design presents significant operational issues for SCE. This alternative would not improve reliability, one of the Proposed Project objectives. Therefore, this alternative was not chosen for the Proposed Project.

Alternate Two-Line 66 kV Sub-transmission Modification

An alternative two-line configuration was evaluated for the interconnection of the proposed SCE 66 kV sub-transmission modification and proposed SCE Natural Substation.

Alternate Description - The existing SCE 66 kV sub-transmission system includes two source lines, the Chatsworth-MacNeil-Newhall-San Fernando line and the MacNeil-Newhall-San Fernando line. The alternate two-line configuration would re-construct only the Chatsworth-MacNeil-Newhall-San Fernando line and not the MacNeil-Newhall-San Fernando line. The SCE Chatsworth-MacNeil-Newhall-San Fernando line would not be modified at the Chatsworth Tap and constructed to the proposed SCE Natural Substation,.

Alternate Evaluation – The alternate two-line configuration limits the assurance of successful operation and utility services provided by the proposed SCE Natural Substation because only one line would interconnect the substation to the 66 kV sub-transmission system. The proposed SCE 66 kV sub-transmission modification includes construction of an additional line interconnecting the proposed SCE Natural Substation to the modified SCE Chatsworth-MacNeil-Newhall-San Fernando line. The additional line provides increased reliability and service capabilities during unplanned activity including power surges or failures; therefore, the alternate two-line configuration would not be a feasible option for the Proposed Project. This alternative would not improve reliability, one of the Proposed Project objectives. Therefore, this alternative was not chosen for the Proposed Project.

6.1 Alternatives Evaluation

Table 6-1 summarizes the differences in potential environmental impacts for the alternatives relative to the Proposed Project. Due to the lack of significant impacts, the No Project alternative is not included in the table.

In conclusion, the alternative compressor station location, alternate substation location, and alternate two-line configuration have similar impacts as that of the Proposed Project. The alternative of using gas-driven compressors results in significantly greater air quality impacts due to the combustion of natural gas. The no guard house relocation results in slightly higher air quality and transportation impacts. This is primarily due to increased congestion resulting from the existing limited egress and ingress capacity at the Storage Field entrance. Lastly, the impacts of adding three additional 16 kV distribution circuits along the route of the Gavin 16 kV instead of modifying the existing 66 kV results in somewhat greater potential impact than the Proposed Project. This is primarily due to the need for the 16 kV circuits to be constructed across several sensitive habitat areas and view sheds that lie to the north and northeast of the Aliso Canyon facility. All of the alternatives evaluated in this PEA, with the exception of the no project alternative, the alternate two-line configuration, and the alternate 16 kV distribution service, satisfy the project objectives. These alternatives were not chosen for the Proposed Project based on the evaluation presented above.

Table 6.2 Evaluation of Alternative Impacts

Resource Area	Proposed Project (PP) Impact	Alternate Compressor Station Location	Turbine-Driven Compressors	Alternate No Guard House Relocation	Alternate SCE Natural Substation Location	Alternate 16 kV Distribution	Alternate Two-line Configuration
Aesthetics	Less Than Significant	Similar to the PP	Less than the PP	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP
Agriculture Resources	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Air Quality	Less than Significant	Similar to the PP	More than the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Biological Resources	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Less than the PP	Similar to the PP
Cultural Resources	Less than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Geology and Soils	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Hazards and Hazardous Materials	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Hydrology and Water Quality	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Land Use and Planning	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Mineral Resources	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Noise	Less Than Significant	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP	Similar to the PP	Similar to the PP

Table 6.2 Evaluation of Alternative Impacts

Resource Area	Proposed Project (PP) Impact	Alternate Compressor Station Location	Turbine-Driven Compressors	Alternate No Guard House Relocation	Alternate SCE Natural Substation Location	Alternate 16 kV Distribution	Alternate Two-line Configuration
Population and Housing	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Public Services	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Recreation	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Transportation and Traffic	Less Than Significant	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP	More than the PP	Similar to the PP
Utilities and Service Systems	No Impact	Similar to the PP	Similar to the PP	Similar to the PP	More than the PP	Similar to the PP	Similar to the PP
Cumulative Impacts	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP
Growth Inducing Impacts	Less Than Significant	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP	Similar to the PP

Abbreviations and Acronyms

§	section
#	number
±	plus/minus
~	approximately
>	more than
<	less than
≥	more than or equal to
$\mu g/m^3$	micrograms per cubic meter
°F	Degrees Fahrenheit
AC	alternating current
ACTR	Aliso Canyon Turbine Replacement
AP	Alquist-Priolo
APM	Applicant Proposed Measure
AQ	Air Quality
AQMP	Air Quality Management Plan
ASCR	aluminum conductor steel reinforced
AST	aboveground storage tank
BAS	Bryan A. Stirrat & Associates
BAT	best available technology
BCAP	Biennial Cost Allocation Proceeding
BCF	billion cubic feet
Bcfd	billion cubic feet per day
BCT	Best Conventional Pollutant Control Technology
bgs	below ground surface
BLM	Bureau of Land Management
BMPs	Best Management Practices
BOPD	barrels of oil per day
B.P.	before present
ca.	circa
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISC	California Independent System Operator
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CBC	California Building Code
CBD	Central Business District
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFG	California Department of Fish and Game
CDMG	California Department of Conservation, Division of Mines and Geology
CDOF	California Department of Finance
CEMS	Continuous Emissions Monitoring System
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfd	cubic feet per day
CFR	Code of Federal Regulations
CGS	California Geological Survey

CIWMB	California Integrated Waste Management Board
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNG	compressed natural gas
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Registry of Historic Resources
CT	current transformer
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DAA	Designated Administrative Agency
DBH	diameter at breast height
DC	direct current
DMG	California Division of Mines and Geology
DNL or Ldn	day-night average sound level
DOGGR	California Department of Conservation, Division of Oil, Gas and Geothermal
DOT	United States Department of Transportation
DPW	Department of Public Works
DRP	Department of Regional Planning
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
DWP	Department of Water and Power
DWR	California Department of Water Resources
EDR	Environmental Data Resources
e.g.	for example (exempli gratia)
EIR	Environmental Impact Report
EMF	electric and magnetic field
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPRI	Electric Power Research Institute
ERA	Environmentally Restricted Area
ERCRA	Environmental Resource Conservation and Recovery Act
ERP	Operational Area Emergency Response Plan
ESA	Endangered Species Act
et al.	and others (et alii, et alia)
et seq.	and the following (et sequential)
etc.	and so forth (et cetera)
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FIX	
FMMP	Farmland Mapping and Monitoring Program
FMP	Field Management Plan
ft^2	square feet
FTA	Federal Transit Authority
FWKO	free water knock out

g	amount of ground shaking
G.E.	General Electric
GHG	greenhouse gas
GIS	Geographic Information System
GO	General Order
GPS	Global Positioning System
H&SC	California Health and Safety Code
HMBP	Hazardous Materials Business Plan
HMI	human-machine interface
HOA	Homeowners Association
HP	horsepower
HW	Highway
Hz	hertz
ICU	Intersection Capacity Utilization
i.e.	that is (id est)
IEEE	Institute of Electrical and Electronics Engineers
IERP	Integrates Energy Policy Report
in/sec	inches per second
ISO	International Organization for Standardization
kbps	kilobyte
kcmil	thousand circular mils
km	kilometer
km^2	square kilometers
km/hr	kilometers per hour
kV	kilovolt
LACC	Los Angeles County Code
LACDPW	Los Angeles County Department of Public Works
LACDRP	Los Angeles County Department of Regional Planning
LACFD	Los Angeles County Fire Department
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAMC	Los Angeles Municipal Code
LARWQCB	Los Angeles Regional Water Quality Control Board
LAUSD	Los Angeles Unified School District
lbs/day	pounds per day
Leq	equivalent noise level
LNG	liquefied natural gas
LOS	level of service
LST	lattice steel tower
LST	Localized Significance Threshold
m^3	cubic meters
M	magnitude
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
mD	millidarcy
MDA	Michael D. Antonovich
MEER	mechanical engineering and electrical room
mg/m^3	milligrams per cubic meter
mi	Miles
MMcfd	million cubic feet per day

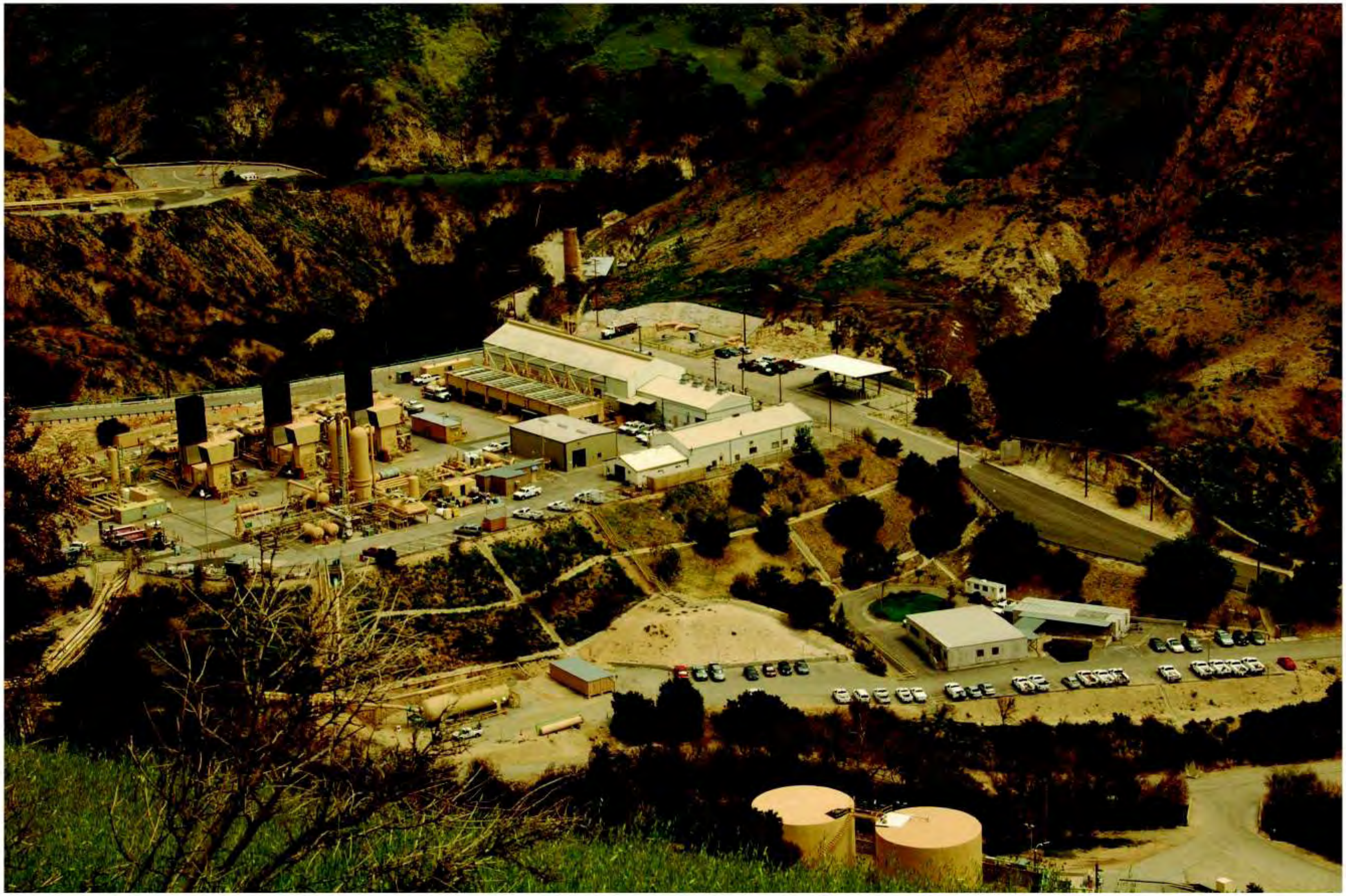
mm/yr	millimeters per year
MPE	Maximum Probable Earthquake
mph	miles per hour
MRZ	Mineral Resource Zone
MSDS	Material Safety Data Sheets
MSL	mean sea level
MT	metric ton
MVA	megavolt ampere
M_w	estimated maximum earthquake magnitude
MX	mixed use
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
NCWD	Newhall County Water District
NESHAPs	National Emissions Standards for Hazardous Air Pollutant
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NSPS	New Stationary Performance Source
NSR	New Source Review
NWP	Nationwide Permit
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
OVOV	One Valley One Vision
PEA	Proponent's Environmental Assessment
pH	negative log of the hydrogen ion concentration
PI	Process Information
PLC	pig launcher control
PM_{10}	Particulate matter less than 10 microns
$PM_{2.5}$	Particulate matter less than 2.5 microns
PPL	Plant Power Line
ppm	parts per million
ppy	peak particle velocity
PSD	prevention of significant deterioration
psia	pounds per square inch
psig	pounds per square inch (gauge)
PSV	pressure safety valve
PT	potential transformer
PTC	Permit to Construct
PVC	polyvinyl chloride
P/Z	reservoir pressure/modified gas compressibility
RCB	River Coastal Basin
RECLAIM	Regional Clean Air Incentive Market
rms	root mean square
ROG	reactive organic gases
ROW	right-of-way

RP	Ridgeline Preservation
RTC	RECLAIM Trading Credits
RWQCB	Regional Water Quality Control Board
SA	Settlement Agreement
SARA	Superfund Act Reauthorization Amendments
SCAB	South Coast Air Basin
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCG	Southern California Gas Company
SCMC	Santa Clarita Municipal Code
SCRV	Santa Clarita River Valley
SCV	Santa Clarita Valley
SDG&E	San Diego Gas and Electric Company
SEA	Significant Ecological Area
SEATAC	Significant Ecological Area Technical Advisory Committee
SEMS	State Emergency Management System
SF_6	sulfur hexafluoride
SIC	Standard Industrial Classification
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SOx	sulfur oxide
SP	Special Publication
SPCC	Spill Prevention, Control and Countermeasures
SRA	Significant Resource Area
SSC	Species of Special Concern
SSURGO	Soil Survey Geographic Database
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TDC	turbine driven compressor
TNW	Traditional Navigable Water
TPD	tons per day
TSP	tubular steel pole
UBC	Uniform Building Code
ULARA	Upper Los Angeles River Area
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VdB	Vibration decibels
VFD	variable frequency drive
VOC	volatile organic compound
WATCH	Work Area Traffic Control Handbook
WEAP	Worker Environmental Awareness Program
WRP	Water Reclamation Plant

Appendix A Project Description Information

Appendix A – Project Description Information

List of Figures



Aliso Canyon PEA

Figure A-1
Gas Plant Overview

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: June 2009

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Aliso Canyon PEA

Figure A-2
Proposed SCE
Natural Substation
Location

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: August 2009

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Aliso Canyon PEA

Figure A-3
Proposed SCE
Natural Substation
Location and Gas
Plant-East

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: August 2009

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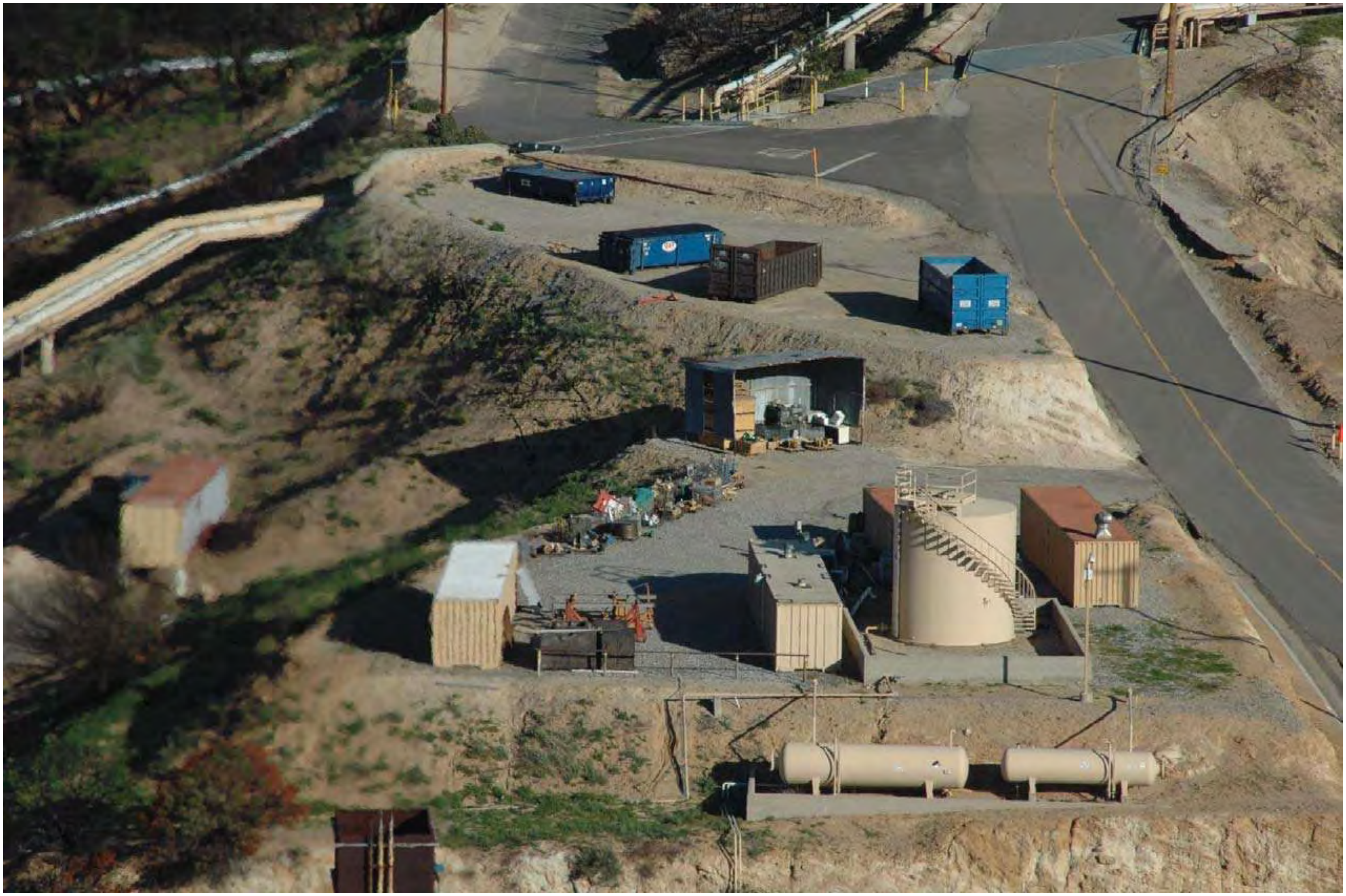

Aliso Canyon PEA

Figure A-4
Proposed Office
Trailer Relocation Site

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: August 2009

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Appendix B Environmental Resource Information

Appendix B.1 – Air Quality Emission Calculations

Table 1

Scenario[1]	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
	Peak Daily Construction Emissions					
1	43.00	78.35	490.11	10.80	24.88	8.82
2	69.31	129.30	492.42	5.09	46.65	17.03
3	68.42	174.60	425.98	3.62	28.87	12.52
4	70.34	197.48	492.96	4.99	36.97	15.84
5	73.55	226.98	454.30	3.77	30.80	15.47
6	38.59	58.14	192.86	1.98	14.85	4.86
Peak Daily	**73.55**	**226.98**	**492.96**	**10.80**	**46.65**	**17.03**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Guard House and Office Trailer Relocation	20.36	46.57	312.12	8.31	8.11	4.43
Substation Survey	0.15	0.18	0.19	0.15	0.23	0.15
Marshalling Yard	1.73	2.25	0.91	0.00	0.75	0.11
ROW Clearing	8.31	10.21	65.37	0.93	3.02	0.96
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	16.68	110.10	1.41	12.59	3.13
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**43.00**	**78.35**	**490.11**	**10.80**	**24.88**	**8.82**

Scenario 2 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Survey	0.09	0.17	0.18	0.07	0.12	0.08
Substation Grading	7.09	24.03	46.11	0.06	15.56	4.48
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	16.68	110.10	1.41	12.59	3.13
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.00	0.71
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**69.31**	**129.30**	**492.42**	**5.09**	**46.65**	**17.03**

Table 1
Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Site Clearing	5.69	30.69	32.08	0.05	3.07	0.99
Compressor Station Site Preparation	7.57	39.40	50.28	0.07	5.28	0.99
Substation Civil	3.28	13.13	12.29	0.02	1.39	0.99
Substation Fencing	0.82	3.54	2.60	0.00	0.30	0.19
Subtransmission Guard Structure Installation	9.05	8.28	18.38	0.05	3.45	0.71
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**68.42**	**174.60**	**425.98**	**3.62**	**28.87**	**12.52**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Civil	10.51	69.93	47.43	0.11	6.20	2.47
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	16.68	110.10	1.41	12.59	3.13
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**70.34**	**197.48**	**492.96**	**4.99**	**36.97**	**15.84**

Table 1
Scenario 5 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Mechanical	11.76	73.06	57.14	0.12	6.57	2.80
Compressor Station Electrical	5.95	33.10	34.80	0.06	2.99	1.68
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.00	0.71
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**73.55**	**226.98**	**454.30**	**3.77**	**30.80**	**15.47**

Scenario 6 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
PPL Installation	14.69	15.67	22.12	0.06	6.53	1.26
Subtransmission Line Conductor Installation	17.68	23.49	108.34	1.41	6.43	2.27
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.00	0.71
Fiber Optic Installation	0.32	2.17	2.09	0.00	0.22	0.09
Subtransmission Guard Structure Removal	10.47	12.43	46.93	0.42	4.12	1.17
Compressor Station Paving	0.18	1.44	0.53	0.00	0.12	0.02
Compressor Station Fencing	0.27	1.88	0.59	0.00	0.15	0.04
Compressor Station Landscaping	1.54	6.78	7.45	0.01	0.75	0.52
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**38.59**	**58.14**	**192.86**	**1.98**	**14.85**	**4.86**

Table 2
Compressor Station Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.09	0.17	0.18	0.07	0.08	0.08
Vehicle Fugitive	--	--	--	--	0.04	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.09**	**0.17**	**0.18**	**0.07**	**0.12**	**0.08**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	2	0.07	0.07	0.07	0.07	0.07	0.07
Total Vehicle Exhaust			**0.09**	**0.17**	**0.18**	**0.07**	**0.08**	**0.08**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	2	0.04	0.00
Worker Commuting	Unpaved	0	2	0.00	0.00
Total Vehicle Fugitive				**0.04**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Table 3
Compressor Station Site Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.55	12.87	26.32	0.03	1.62	1.49
Vehicle Exhaust	2.15	17.81	5.76	0.03	0.36	0.27
Vehicle Fugitive	--	--	--	--	1.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**5.69**	**30.69**	**32.08**	**0.05**	**3.07**	**1.76**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
D6 Dozer		5	1	0.93	3.20	6.93	0.01	0.43	0.39
Grader		5	1	0.86	3.16	7.17	0.01	0.38	0.35
Backhoe/Loader		5	2	1.02	3.93	6.75	0.01	0.52	0.48
Sheep's Foot Vibrator Compactor (10 yards)		5	2	0.05	0.26	0.32	0.00	0.02	0.01
Forklift		5	2	0.69	2.32	5.16	0.01	0.28	0.26
Total Equipment Exhaust				**3.55**	**12.87**	**26.32**	**0.03**	**1.62**	**1.49**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	6	0.18	0.72	2.29	0.00	0.11	0.10
6 Ton Truck	10	2	0.06	0.24	0.76	0.00	0.04	0.03
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**2.15**	**17.81**	**5.76**	**0.03**	**0.36**	**0.27**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	6	0.03	0.00
Dump Truck	Unpaved	0	6	0.00	0.00
6 Ton Truck	Paved	10	2	0.01	0.00
6 Ton Truck	Unpaved	0	2	0.00	0.00
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 4
Compressor Station Site Preparation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.35	16.14	32.66	0.04	1.98	1.82
Vehicle Exhaust	3.23	23.26	17.62	0.04	0.89	0.74
Vehicle Fugitive	--	--	--	--	1.27	0.00
Earthwork Fugitive	--	--	--	--	1.14	0.24
Total	**7.57**	**39.40**	**50.28**	**0.07**	**5.28**	**2.79**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
D6 Dozer		5	1	0.93	3.20	6.93	0.01	0.43	0.39
Grader		5	1	0.86	3.16	7.17	0.01	0.38	0.35
Excavator		5	2	1.48	5.58	11.50	0.01	0.64	0.59
Backhoe/Loader		5	2	1.02	3.93	6.75	0.01	0.52	0.48
Sheep's Foot Vibrator Compactor (10 yards)		5	2	0.05	0.26	0.32	0.00	0.02	0.01
Total Equipment Exhaust				**4.35**	**16.14**	**32.66**	**0.04**	**1.98**	**1.82**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
Dump Truck (20 yards)	24	12	0.88	3.44	11.01	0.01	0.53	0.46
Dump Truck (10 yards)	24	1	0.07	0.29	0.92	0.00	0.04	0.04
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**3.23**	**23.26**	**17.62**	**0.04**	**0.89**	**0.74**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Dump Truck (20 yards)	Paved	24	12	0.15	0.00
Dump Truck (10 yards)	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.27**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	1,150	1.14	0.24
Bulldozing, Scraping and Grading	Hours/Day	25	8.69	1.81
Storage Pile Wind Erosion[c]	Acres	0.5	11.00	2.29
Total Earthwork Fugitive			**20.84**	**4.33**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46
[b] Peak daily estimated from total of 100,000 CY over 4 months (87 working); i.e., 1150 CY per day
[c] Assumed for 0.5 acre storage pile area

Table 5
Compressor Station Civil

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.15	15.68	32.71	0.04	1.93	1.77
Vehicle Exhaust	6.36	54.25	14.72	0.08	0.93	0.68
Vehicle Fugitive	--	--	--	--	3.25	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**10.51**	**69.93**	**47.43**	**0.11**	**6.20**	**2.47**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Drilling Rig		5	1	0.53	2.57	5.67	0.01	0.25	0.23
Backhoe/Loader		5	2	1.02	3.93	6.75	0.01	0.52	0.48
Forklift		5	1	0.34	1.16	2.58	0.00	0.14	0.13
30 Ton Hydraulic Crane		5	1	0.80	2.72	7.26	0.01	0.32	0.30
D6 Dozer		5	1	0.93	3.20	6.93	0.01	0.43	0.39
Front End Loader		5	1	0.51	1.96	3.37	0.00	0.26	0.24
Sheep's Foot Vibrator Compactor (10 yards)		5	1	0.03	0.13	0.16	0.00	0.01	0.01
Total Equipment Exhaust				**4.15**	**15.68**	**32.71**	**0.04**	**1.93**	**1.77**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
6 Ton Truck	20	7	0.43	1.67	5.35	0.01	0.26	0.22
Worker Commuting	40	150	5.48	49.58	5.51	0.06	0.52	0.33
Total Vehicle Exhaust			**6.36**	**54.25**	**14.72**	**0.08**	**0.93**	**0.68**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
6 Ton Truck	Paved	20	7	0.07	0.00
6 Ton Truck	Unpaved	0	7	0.00	0.00
Worker Commuting	Paved	40	150	3.09	0.00
Worker Commuting	Unpaved	0	150	0.00	0.00
Total Vehicle Fugitive				**3.25**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 6
Compressor Station Mechanical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	5.46	19.04	43.19	0.04	2.34	2.15
Vehicle Exhaust	6.30	54.02	13.95	0.07	0.89	0.65
Vehicle Fugitive	--	--	--	--	3.24	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.00
Total	**11.76**	**73.06**	**57.14**	**0.12**	**6.57**	**2.80**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
30 Ton Hydraulic Crane		5	1	0.80	2.72	7.26	0.01	0.32	0.30
50 Ton Hydraulic Crane		5	1	0.80	2.72	7.26	0.01	0.32	0.30
200 Ton Crawler Crane		5	2	1.59	5.43	14.51	0.01	0.64	0.59
Forklift		5	1	0.34	1.16	2.58	0.00	0.14	0.13
Front End Loader		5	3	1.53	5.89	10.12	0.01	0.78	0.72
Welders		5	1	0.40	1.12	1.46	0.00	0.13	0.12
Total Equipment Exhaust				**5.46**	**19.04**	**43.19**	**0.04**	**2.34**	**2.15**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
6 Ton Truck	20	7	0.43	1.67	5.35	0.01	0.26	0.22
Worker Commuting	40	150	5.48	49.58	5.51	0.06	0.52	0.33
Total Vehicle Exhaust			**6.30**	**54.02**	**13.95**	**0.07**	**0.89**	**0.65**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
6 Ton Truck	Paved	20	7	0.07	0.00
6 Ton Truck	Unpaved	0	7	0.00	0.00
Worker Commuting	Paved	40	150	3.09	0.00
Worker Commuting	Unpaved	0	150	0.00	0.00
Total Vehicle Fugitive				**3.24**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.00
Total Earthwork Fugitive			**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46
[b] Estimate

Table 7
Compressor Station Electrical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.74	13.81	29.87	0.04	1.60	1.47
Vehicle Exhaust	2.22	19.29	4.93	0.03	0.29	0.21
Vehicle Fugitive	--	--	--	--	1.11	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**5.95**	**33.10**	**34.80**	**0.06**	**2.99**	**1.68**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Front End Loader		5	1	0.51	1.96	3.37	0.00	0.26	0.24
Generators		8	2	1.54	5.27	10.30	0.01	0.63	0.58
Other Construction Equipment		8	2	1.69	6.57	16.19	0.02	0.71	0.65
Total Equipment Exhaust				**3.74**	**13.81**	**29.87**	**0.04**	**1.60**	**1.47**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**2.22**	**19.29**	**4.93**	**0.03**	**0.29**	**0.21**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.11**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 8
Compressor Station Paving

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.24	11.24	20.54	0.02	1.48	1.36
Vehicle Exhaust	0.30	2.47	1.02	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.14	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Asphaltic Paving	--	2.62	--	--	--	--
Total	**3.5**	**16.3**	**21.6**	**0.0**	**1.7**	**1.4**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Paving Roller		5	2	1.18	4.21	7.75	0.01	0.55	0.50
Asphalt Paver		5	1	0.89	2.82	4.93	0.00	0.35	0.33
Asphalt Curb Machine		5	1	0.67	2.24	4.48	0.00	0.31	0.29
Tractor		5	1	0.51	1.96	3.37	0.00	0.26	0.24
Total Equipment Exhaust				**3.24**	**11.24**	**20.54**	**0.02**	**1.48**	**1.36**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	2	0.05	0.37	0.41	0.00	0.02	0.01
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.30**	**2.47**	**1.02**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	2	0.01	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.14**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	ROG (lb/day)[c]
1.0	2.62	2.62

[a] Assumed a maximum of 1 acre paved in a day for worst-case emission estimation

[b] From URBEMISS 2007 User's Guide, Appendix A

[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 9
Compressor Station Fencing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.55	1.99	2.34	0.00	0.20	0.19
Vehicle Exhaust	0.20	1.63	0.74	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.09	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.76**	**3.62**	**3.07**	**0.01**	**0.33**	**0.22**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Skid Steer Loader		8	1	0.55	1.99	2.34	0.00	0.20	0.19
Total Equipment Exhaust				**0.55**	**1.99**	**2.34**	**0.00**	**0.20**	**0.19**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Pickup Truck	10	1	0.03	0.18	0.21	0.00	0.01	0.01
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.20**	**1.63**	**0.74**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	Paved	10	1	0.01	0.00
Flatbed Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	10	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.09**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 10
Compressor Station Landscaping

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.61	2.36	4.05	0.00	0.31	0.29
Vehicle Exhaust	0.40	3.42	0.75	0.00	0.05	10.02
Vehicle Fugitive	--	--	--	--	0.21	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.01**	**5.78**	**4.80**	**0.01**	**0.58**	**10.30**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Tractor		6	1	0.61	2.36	4.05	0.00	0.31	0.29
Total Equipment Exhaust				**0.61**	**2.36**	**4.05**	**0.00**	**0.31**	**0.29**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	10.00
Total Vehicle Exhaust			**0.40**	**3.42**	**0.75**	**0.00**	**0.05**	**10.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.21**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 11
Plant Power Line Construction

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	14.14	10.71	21.57	0.05	6.07	1.20
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**14.69**	**15.67**	**22.12**	**0.06**	**6.53**	**1.26**

Construction Equipment Exhaust Emissions

Equipment	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Backhoe	6	2	1.22	0.96	0.80	0.00	0.62	0.12
Hauler	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Skid Steer Loader	4	2	0.55	0.28	0.04	0.00	0.20	0.03
Water Truck	6	1	1.49	1.11	3.93	0.01	0.53	0.12
Concrete Truck	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Ditch Witch	6	1	1.06	0.59	1.02	0.00	0.43	0.07
Batch Plant	8	1	1.72	1.25	3.10	0.01	0.75	0.15
Drill Rig	6	2	1.26	1.30	1.86	0.00	0.60	0.12
Truck with Trailer	2	2	0.99	1.47	3.49	0.01	0.35	0.16
Compressor	2	1	0.22	0.08	0.01	0.00	0.36	0.04
Construction Fork	6	1	0.76	0.36	0.22	0.00	0.41	0.05
980 Loader	4	1	0.41	0.16	0.04	0.00	0.21	0.02
Boom Truck	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Bucket Truck	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Vibrating Roller	4	1	0.47	0.20	0.07	0.00	0.22	0.02
Total Equipment Exhaust			**14.14**	**10.71**	**21.57**	**0.05**	**6.07**	**1.20**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission estimates calculated using SCAQMD Off-road Emission factors, provided in tab "Offroad 2010"

Emission factors based on equipment composite where BHP unknown.

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 12
Guard House and Office Trailer Relocation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	19.82	41.61	311.57	8.30	7.64	4.38
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**20.36**	**46.57**	**312.12**	**8.31**	**8.11**	**4.43**

Construction Equipment Exhaust Emissions

Equipment	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pickup Truck	4	4	3.97	11.79	111.75	3.50	1.40	1.28
10-Ton Hydraulic Crane	4	1	0.64	0.35	0.32	0.00	0.26	0.04
Backhoe/Loader	4	2	1.15	1.17	1.56	0.00	0.52	0.14
Water Truck	4	2	1.98	2.95	13.97	0.11	0.70	0.32
Grader	4	1	0.69	0.44	0.43	0.00	0.30	0.05
D6 Dozer	4	2	2.70	7.64	61.70	1.16	1.03	0.64
Dump Truck	4	4	3.97	11.79	111.75	3.50	1.40	1.28
Sheep's Foot Vibrator Compactor	4	2	1.72	2.50	6.20	0.02	0.75	0.30
Front End Loader	4	2	1.15	1.17	1.56	0.00	0.52	0.14
Drill Rig	4	1	0.42	0.22	0.10	0.00	0.20	0.02
Paver/Sealer	4	2	1.42	1.60	2.24	0.00	0.57	0.19
Total Equipment Exhaust			**19.82**	**41.61**	**311.57**	**8.30**	**7.64**	**4.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission estimates calculated using SCAQMD Off-road Emission factors, provided in tab "Offroad 2010"

Emission factors based on equipment composite where BHP unknown.

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 13
Substation Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.15	0.18	0.19	0.15	0.15	0.15
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.15**	**0.18**	**0.19**	**0.15**	**0.23**	**0.15**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	1	2	0.01	0.04	0.04	0.00	0.00	0.00
Worker Commuting	40	4	0.15	0.15	0.15	0.15	0.15	0.15
Total Vehicle Exhaust			**0.15**	**0.18**	**0.19**	**0.15**	**0.15**	**0.15**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	1	2	0.00	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 14
Substation Grading

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	5.78	15.86	36.26	0.04	2.63	1.56
Vehicle Exhaust	1.31	8.17	9.86	0.02	0.49	0.42
Vehicle Fugitive	--	--	--	--	0.44	0.00
Earthwork Fugitive	--	--	--	--	12.00	2.50
Total	**7.09**	**24.03**	**46.11**	**0.06**	**15.56**	**4.48**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Off-Highway Truck	300	8	1	1.31	0.56	1.19	0.00	0.46	0.07
Grader	350	1	1	0.17	0.63	1.43	0.00	0.08	0.07
Water Truck	350	8	2	1.87	9.44	15.88	0.02	0.87	0.80
Backhoe	350	6	1	0.85	2.42	9.30	0.01	0.31	0.29
Dozer	350	6	1	0.90	0.38	0.52	0.00	0.64	0.09
Lowboy Truck/Trailer	500	4	1	0.68	2.43	7.93	0.01	0.27	0.25
Total Equipment Exhaust				**5.78**	**15.86**	**36.26**	**0.04**	**2.63**	**1.56**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Tool Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Pickup Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Dump Truck	5	44	0.67	2.63	8.41	0.01	0.40	0.35
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**1.31**	**8.17**	**9.86**	**0.02**	**0.49**	**0.42**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44
No. dump trucks = 440 CY/day / 10 CY/truck

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	10	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Tool Truck	Paved	5	1	0.00	0.00
Tool Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	20	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	5	44	0.11	0.00
Dump Truck	Unpaved	0	44	0.00	0.00
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.44**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	1,000	0.99	0.21
Storage Pile Wind Erosion[c]	Acres	0.5	11.00	2.29
Total Earthwork Fugitive			**12.00**	**2.50**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46
[b] Peak daily estimated from total of 40,000 CY over 45 days
[c] Assumed for 0.5 acre storage pile area

Table 15
Substation Civil

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	2.84	9.49	11.06	0.01	1.00	0.92
Vehicle Exhaust	0.44	3.64	1.23	0.01	0.08	0.06
Vehicle Fugitive	--	--	--	--	0.22	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**3.28**	**13.13**	**12.29**	**0.02**	**1.39**	**0.99**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Excavator	152	4	1	0.56	2.13	3.36	0.00	0.31	0.29
Foundation Auger	79	6	1	0.33	1.50	1.69	0.00	0.12	0.11
Backhoe	79	3	2	0.75	2.13	1.87	0.00	0.19	0.17
Skip Loader	75	3	1	0.24	0.75	0.74	0.00	0.07	0.06
Skid Steer Loader	75	3	2	0.47	1.50	1.48	0.00	0.13	0.12
Forklift	83	4	1	0.27	0.73	0.61	0.00	0.07	0.06
17 Ton Crane	125	2	1	0.22	0.74	1.31	0.00	0.12	0.11
Total Equipment Exhaust				**2.84**	**9.49**	**11.06**	**0.01**	**1.00**	**0.92**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Tool Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	0.02
Total Vehicle Exhaust			**0.44**	**3.64**	**1.23**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	10	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Tool Truck	Paved	5	1	0.00	0.00
Tool Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.22**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

[b] Estimate

Table 16
Substation MEER

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Exhaust	0.2	1.4	0.5	0.0	0.0	0.0
Vehicle Fugitive	--	--	--	--	0.1	0.0
Earthwork Fugitive	--	--	--	--	0.0	0.0
Total	**0.2**	**1.4**	**0.5**	**0.0**	**0.1**	**0.0**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.0	0.0	0.0	0.0	0.0	0.0
Total Equipment Exhaust				**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Carry-all Truck	5	1	0.02	0.06	0.19	0.00	0.01	0.01
Stake Truck	5	1	0.02	0.06	0.19	0.00	0.01	0.01
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.2**	**1.4**	**0.5**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Carry-all Truck	Paved	5	1	0.0	0.0
Carry-all Truck	Unpaved	0	1	0.0	0.0
Stake Truck	Paved	5	1	0.0	0.0
Stake Truck	Unpaved	0	1	0.0	0.0
Worker Commuting	Paved	40	4	0.1	0.0
Worker Commuting	Unpaved	0	4	0.0	0.0
Total Vehicle Fugitive				**0.1**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.0	0.0
Total Earthwork Fugitive			**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 17
Substation Electrical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.22	3.40	4.55	0.01	0.41	0.38
Vehicle Exhaust	0.47	4.04	1.19	0.01	0.06	0.05
Vehicle Fugitive	--	--	--	--	0.23	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.69**	**7.44**	**5.75**	**0.01**	**0.70**	**0.42**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Scissor Lift	87	3	2	0.45	1.16	1.19	0.00	0.11	0.10
Manlift	43	3	2	0.13	0.35	0.61	0.00	0.04	0.04
Reach Manlift	87	4	1	0.30	0.77	0.79	0.00	0.08	0.07
15 Ton Crane	125	3	1	0.33	1.12	1.96	0.00	0.18	0.17
Total Equipment Exhaust				**1.22**	**3.40**	**4.55**	**0.01**	**0.41**	**0.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	20	2	0.10	0.74	0.82	0.00	0.03	0.03
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	0.02
Total Vehicle Exhaust			**0.47**	**4.04**	**1.19**	**0.01**	**0.06**	**0.05**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	20	2	0.02	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.23**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Table 18
Substation Wiring

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.08	0.23	0.41	0.00	0.03	0.02
Vehicle Exhaust	0.18	1.65	0.18	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.10	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.27**	**1.88**	**0.59**	**0.00**	**0.15**	**0.04**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Manlift	43	4	1	0.08	0.23	0.41	0.00	0.03	0.02
Total Equipment Exhaust				**0.08**	**0.23**	**0.41**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	5	0.18	1.65	0.18	0.00	0.02	0.01
Total Vehicle Exhaust			**0.18**	**1.65**	**0.18**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	5	0.10	0.00
Worker Commuting	Unpaved	0	5	0.00	0.00
Total Vehicle Fugitive				**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 19
Substation Transformer

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.07	3.33	4.84	0.00	0.46	0.42
Vehicle Exhaust	0.47	3.45	2.60	0.01	0.12	0.10
Vehicle Fugitive	--	--	--	--	0.17	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.54**	**6.78**	**7.45**	**0.01**	**0.75**	**0.52**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Forklift	83	1	6	0.40	1.09	0.92	0.00	0.10	0.09
Crane	125	1	6	0.67	2.23	3.93	0.00	0.36	0.33
Total Equipment Exhaust				**1.07**	**3.33**	**4.84**	**0.00**	**0.46**	**0.42**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Low Bed Truck	30	1	0.09	0.36	1.15	0.00	0.05	0.05
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.47**	**3.45**	**2.60**	**0.01**	**0.12**	**0.10**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	30	2	0.03	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Low Bed Truck	Paved	30	1	0.02	0.00
Low Bed Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.17**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 20
Substation Testing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.12	1.03	0.49	0.00	0.02	0.02
Vehicle Fugitive	--	--	--	--	0.05	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.12**	**1.03**	**0.49**	**0.00**	**0.07**	**0.02**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Worker Commuting	40	2	0.07	0.66	0.07	0.00	0.01	0.00
Total Vehicle Exhaust			**0.12**	**1.03**	**0.49**	**0.00**	**0.02**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	20	1	0.01	0.00
Crew Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	2	0.04	0.00
Worker Commuting	Unpaved	0	2	0.00	0.00
Total Vehicle Fugitive				**0.05**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 21
Substation Maintenance

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.18	1.37	1.27	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.05	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.18**	**1.37**	**1.27**	**0.00**	**0.10**	**0.04**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Maintenance Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Worker Commuting	32	1	0.03	0.26	0.03	0.00	0.00	0.00
Total Vehicle Exhaust			**0.18**	**1.37**	**1.27**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Maintenance Truck	Paved	30	2	0.03	0.00
Maintenance Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	32	1	0.02	0.00
Worker Commuting	Unpaved	0	1	0.00	0.00
Total Vehicle Fugitive				**0.05**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 22
Substation Paving

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.90	2.89	5.41	0.01	0.42	0.39
Vehicle Exhaust	0.44	3.33	2.22	0.01	0.10	0.08
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Asphaltic Paving	--	2.62	--	--	--	--
Total	**1.3**	**8.8**	**7.6**	**0.0**	**0.7**	**0.5**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Paving Roller	46	4	2	0.13	0.44	0.84	0.00	0.04	0.04
Asphalt Paver	152	4	1	0.66	2.09	3.88	0.00	0.34	0.31
Asphalt Curb Machine	35	3	1	0.05	0.16	0.30	0.00	0.02	0.01
Tractor	45	3	1	0.06	0.20	0.39	0.00	0.02	0.02
Total Equipment Exhaust				**0.90**	**2.89**	**5.41**	**0.01**	**0.42**	**0.39**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Stake Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.44**	**3.33**	**2.22**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	30	2	0.03	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Stake Truck	Paved	10	1	0.01	0.00
Stake Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	ROG (lb/day)[c]
1.0	2.62	2.6

[a] Assumed one acre to be paved (worst-case)
[b] From URBEMISS 2007 User's Guide, Appendix A,
http://www.urbemis.com/software/download.html
[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 23
Substation Fencing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.63	2.01	1.97	0.00	0.17	0.16
Vehicle Exhaust	0.19	1.53	0.63	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.09	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.82**	**3.54**	**2.60**	**0.00**	**0.30**	**0.19**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Skid Steer Loader	75	8	1	0.63	2.01	1.97	0.00	0.17	0.16
Total Equipment Exhaust				**0.63**	**2.01**	**1.97**	**0.00**	**0.17**	**0.16**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.19**	**1.53**	**0.63**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	Paved	10	1	0.01	0.00
Flatbed Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.09**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 24
Substation Landscaping

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.13	0.41	0.79	0.00	0.04	0.04
Vehicle Exhaust	0.25	2.10	0.60	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.13	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.38**	**2.51**	**1.39**	**0.00**	**0.21**	**0.07**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Tractor	45	6	1	0.13	0.41	0.79	0.00	0.04	0.04
Total Equipment Exhaust				**0.13**	**0.41**	**0.79**	**0.00**	**0.04**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.25**	**2.10**	**0.60**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.13**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 25
Subtransmission Guard Structure Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	8.83	6.30	18.16	0.05	3.30	0.69
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**9.05**	**8.28**	**18.38**	**0.05**	**3.45**	**0.71**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	6	2	1.97	1.69	5.38	0.02	0.69	0.21
1-Ton Crew Cab Flat Bed, 4x4	300	6	1	0.98	0.42	0.67	0.00	0.34	0.05
Compressor Trailer	120	6	1	0.43	0.21	0.06	0.00	0.33	0.02
Auger Truck	500	6	1	1.50	1.13	3.91	0.01	0.52	0.12
Extendable Flat Bed Pole Truck	350	6	1	1.50	1.13	3.91	0.01	0.52	0.12
30-Ton Crane Truck	500	8	1	1.46	0.97	2.49	0.00	0.55	0.09
80ft. Hydraulic Man-lift Bucket Truck	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Total Equipment Exhaust				**8.83**	**6.30**	**18.16**	**0.05**	**3.30**	**0.69**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Table 26
Subtransmission Line Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.15	1.36	0.19	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.15**	**1.36**	**0.19**	**0.00**	**0.10**	**0.01**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	1	2	0.01	0.04	0.04	0.00	0.00	0.00
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.36**	**0.19**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	1	2	0.00	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Table 27
Subtransmission Marshalling Yard

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.58	0.93	0.77	0.00	0.66	0.10
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.73**	**2.25**	**0.91**	**0.00**	**0.75**	**0.11**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	1	0.328	0.141	0.075	0.000	0.115	0.017
30-Ton Crane Truck	300	2	1	0.249	0.086	0.026	0.000	0.094	0.011
10,000 lb Rough Terrain	200	5	1	0.820	0.599	0.632	0.001	0.374	0.056
Truck, Semi, Tractor	350	1	1	0.19	0.10	0.03	0.00	0.07	0.01
Total Equipment Exhaust				**1.58**	**0.93**	**0.77**	**0.00**	**0.66**	**0.10**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 28
Subtransmission ROW Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	8.17	8.89	65.23	0.93	2.93	0.95
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**8.31**	**10.21**	**65.37**	**0.93**	**3.02**	**0.96**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	8	1	1.311	0.564	1.195	0.001	0.460	0.069
Road Grader	350	6	1	1.290	0.970	2.652	0.006	0.484	0.096
Water Truck	350	8	2	3.988	6.015	55.618	0.894	1.395	0.640
Backhoe/Front Loader	350	6	1	1.58	1.34	5.76	0.03	0.59	0.14
Track Type Dozer	350	6	1	2.17	3.78	26.36	0.26	0.82	0.27
Lowboy Truck/Trailer	500	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Total Equipment Exhaust				**8.17**	**8.89**	**65.23**	**0.93**	**2.93**	**0.95**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Table 29
Subtransmission Line Roadway

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	12.02	15.69	109.99	1.41	4.18	1.38
Vehicle Exhaust	0.11	0.99	0.11	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.06	0.00
Earthwork Fugitive	--	--	--	--	8.34	1.74
Total	**12.13**	**16.68**	**110.10**	**1.41**	**12.59**	**3.13**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Road Grader	350	4	1	0.86	0.65	1.18	0.00	0.32	0.06
Water Truck	350	8	2	3.99	6.01	55.62	0.89	1.39	0.64
Backhoe/Front Loader	350	6	1	2.08	3.40	24.08	0.25	0.59	0.19
Drum Type Compactor	250	4	1	0.90	0.56	1.28	0.00	0.34	0.07
Track Type Dozer	350	6	1	2.17	3.78	26.36	0.26	0.82	0.27
Excavator	300	6	1	0.87	0.34	0.45	0.00	0.31	0.04
Lowboy Truck/Trailer	500	2	1	0.50	0.38	0.43	0.00	0.17	0.04
Total Equipment Exhaust				**12.02**	**15.69**	**109.99**	**1.41**	**4.18**	**1.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	3	0.11	0.99	0.11	0.00	0.01	0.01
Total Vehicle Exhaust			**0.11**	**0.99**	**0.11**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	3	0.06	0.00
Worker Commuting	Unpaved	0	3	0.00	0.00
Total Vehicle Fugitive				**0.06**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Bulldozing, Scraping and Grading	Hours/Day	24	8.34	1.74
Total Earthwork Fugitive			**8.34**	**1.74**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 30
Subtransmission Pole Framing and Setting

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	11.82	19.64	65.42	0.52	4.59	3.09
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**12.04**	**21.62**	**65.64**	**0.52**	**4.74**	**3.10**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	5	3	2.46	3.17	12.60	0.07	0.86	0.39
10,000 lb/ Rough Terrain Forklift	200	4	1	0.66	0.48	0.40	0.00	0.30	0.05
30-Ton Crane	300	6	2	1.49	1.03	1.91	0.00	0.56	0.39
Compressor Trailer	120	6	3	3.12	7.13	28.43	0.29	1.39	1.91
Flat Bed Truck/Trailer	350	4	1	1.00	3.02	6.97	0.06	0.35	0.08
10-cu yd. Dump Truck	350	4	1	1.00	3.02	4.86	0.03	0.35	0.08
Backhoe/Front Loader	350	8	1	2.10	1.79	10.24	0.07	0.78	0.19
Total Equipment Exhaust				**11.82**	**19.64**	**65.42**	**0.52**	**4.59**	**3.09**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 31
Subtransmission Line TSP Footing Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	15.80	26.65	130.41	1.47	4.93	2.79
Vehicle Exhaust	0.80	6.08	3.63	0.01	0.19	0.15
Vehicle Fugitive	--	--	--	--	0.34	0.00
Earthwork Fugitive	--	--	--	--	0.02	0.00
Total	**16.59**	**32.73**	**134.05**	**1.48**	**5.48**	**2.95**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab Flat Bed, 4x4	300	2	4	1.99	6.01	27.81	0.45	0.70	0.64
30-Ton Crane Truck	300	5	2	1.82	2.41	7.79	0.03	0.68	0.23
Backhoe	200	8	2	1.95	2.29	4.30	0.01	0.90	0.20
Auger Truck	500	6	2	2.99	4.51	31.28	0.38	1.05	0.48
4000 Gallon Water Truck	350	4	2	1.99	3.01	13.90	0.11	0.70	0.32
10-cu. yd. Dump Truck	350	5	2	2.49	3.76	21.73	0.22	0.87	0.40
10-cu. yd. Concrete Mixer Truck	425	5	3	2.56	4.66	23.60	0.27	0.04	0.52
Total Equipment Exhaust				**15.80**	**26.65**	**130.41**	**1.47**	**4.93**	**2.79**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	2	0.12	0.48	1.53	0.00	0.07	0.06
Crew Truck	20	2	0.10	0.74	0.82	0.00	0.03	0.03
Concrete Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	14	0.51	4.63	0.51	0.01	0.05	0.03
Total Vehicle Exhaust			**0.80**	**6.08**	**3.63**	**0.01**	**0.19**	**0.15**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	2	0.02	0.00
Water Truck	Unpaved	0	2	0.00	0.00
Crew Truck	Paved	20	2	0.02	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Concrete Truck	Paved	20	1	0.01	0.00
Concrete Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	14	0.29	0.00
Worker Commuting	Unpaved	0	14	0.00	0.00
Total Vehicle Fugitive				**0.34**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	22	0.02	0.00
Total Earthwork Fugitive			**0.02**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 32
Subtransmission Line Conductor Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	17.08	18.10	107.64	1.41	6.03	2.23
Vehicle Exhaust	0.60	5.39	0.70	0.01	0.06	0.04
Vehicle Fugitive	--	--	--	--	0.33	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**17.68**	**23.49**	**108.34**	**1.41**	**6.43**	**2.27**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	8	2	2.62	2.26	9.56	0.04	0.92	0.28
1-Ton Crew Cab Flat Bed, 4x4	300	8	4	5.25	9.03	76.46	1.29	1.84	1.11
Wire Truck/Trailer	350	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Dump Truck	350	2	1	0.33	0.14	0.07	0.00	0.11	0.02
Bucket Truck	350	8	2	2.62	2.26	9.56	0.04	0.92	0.28
22-Ton Manitex	350	8	2	2.24	1.65	5.54	0.01	0.81	0.21
Splicing Rig	350	2	1	0.28	0.10	0.04	0.00	0.10	0.01
Splicing Lab	300	2	1	0.28	0.10	0.04	0.00	0.10	0.01
3 Drum Straw line Puller	300	6	1	0.84	0.31	0.39	0.00	0.31	0.04
Static Truck/Tensioner	350	6	2	1.97	1.69	5.38	0.02	0.69	0.21
Total Equipment Exhaust				**17.08**	**18.10**	**107.64**	**1.41**	**6.03**	**2.23**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	0.35	16	0.01	0.10	0.12	0.00	0.00	0.00
Worker Commuting	40	16	0.58	5.29	0.59	0.01	0.06	0.04
Total Vehicle Exhaust			**0.60**	**5.39**	**0.70**	**0.01**	**0.06**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	0.35	16	0.00	0.00
Crew Truck	Unpaved	0	16	0.00	0.00
Worker Commuting	Paved	40	16	0.33	0.00
Worker Commuting	Unpaved	0	16	0.00	0.00
Total Vehicle Fugitive				**0.33**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 33
Subtransmission Line Assembly

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	12.93	21.22	110.18	1.41	4.87	2.57
Vehicle Exhaust	0.29	2.64	0.29	0.00	0.03	0.02
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**13.22**	**23.86**	**110.47**	**1.42**	**5.06**	**2.58**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up Truck, 4x4	300	5	5	4.10	8.81	58.34	0.96	1.44	1.08
1-Ton Crew Cab Flat Bed, 4x4	300	5	4	3.28	5.64	29.87	0.32	1.15	0.69
Compressor Trailer	120	5	2	1.32	1.43	1.63	0.00	0.74	0.18
80-Ton Rough Terrain Crane	350	6	3	2.24	2.32	6.43	0.02	0.85	0.29
40' Flat Bed Truck/Trailer	350	4	2	1.99	3.01	13.90	0.11	0.70	0.32
Total Equipment Exhaust				**12.93**	**21.22**	**110.18**	**1.41**	**4.87**	**2.57**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	8	0.29	2.64	0.29	0.00	0.03	0.02
Total Vehicle Exhaust			**0.29**	**2.64**	**0.29**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	8	0.16	0.00
Worker Commuting	Unpaved	0	8	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 34
Subtransmission Line Restoration

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	7.81	7.20	25.50	0.12	2.88	0.70
Vehicle Exhaust	0.18	1.65	0.18	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.10	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**7.99**	**8.85**	**25.69**	**0.13**	**3.00**	**0.71**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Road Grader	350	6	1	1.29	0.97	2.65	0.01	0.48	0.10
Water Truck	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Backhoe/Front Loader	350	6	1	1.58	1.34	5.76	0.03	0.59	0.14
Drum Type Compactor	250	6	1	1.35	0.84	2.87	0.01	0.50	0.10
Track Type Dozer	350	4	1	1.45	2.52	11.71	0.08	0.55	0.18
Lowboy Truck/Trailer	300	3	1	0.49	0.21	0.17	0.00	0.17	0.03
Total Equipment Exhaust				**7.81**	**7.20**	**25.50**	**0.12**	**2.88**	**0.70**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number
Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	5	0.18	1.65	0.18	0.00	0.02	0.01
Total Vehicle Exhaust			**0.18**	**1.65**	**0.18**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	5	0.10	0.00
Worker Commuting	Unpaved	0	5	0.00	0.00
Total Vehicle Fugitive				**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number
Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
Emission factors are in Table 46

Table 35
Fiber Optic Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.32	2.17	2.09	0.00	0.10	0.09
Vehicle Fugitive	--	--	--	--	0.11	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.32**	**2.17**	**2.09**	**0.00**	**0.22**	**0.09**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Heavy Duty Truck	20	2	0.12	0.48	1.53	0.00	0.07	0.06
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.32**	**2.17**	**2.09**	**0.00**	**0.10**	**0.09**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	20	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Heavy Duty Truck	Paved	20	2	0.02	0.00
Heavy Duty Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.11**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 36
Subtransmission Guard Structure Removal

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	10.25	10.45	46.71	0.42	3.98	1.15
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**10.47**	**12.43**	**46.93**	**0.42**	**4.12**	**1.17**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	6	2	1.97	1.69	5.38	0.02	0.69	0.21
1-Ton Crew Cab Flat Bed	300	6	2	1.97	1.69	5.38	0.02	0.69	0.21
Compressor Trailer	120	6	2	0.87	0.83	0.45	0.00	0.65	0.09
Extendable Flat Bed Pole	350	6	2	2.99	4.51	31.28	0.38	1.05	0.48
30-Ton Crane Truck	500	8	1	1.46	0.97	2.49	0.00	0.55	0.09
80ft. Hydraulic Man-lift Bu	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Total Equipment Exhaust				**10.25**	**10.45**	**46.71**	**0.42**	**3.98**	**1.15**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Emission factors are in Table 46

Table 37
Worker Shuttle

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Vehicle Exhaust	0.16	1.11	1.24	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.03	0.00
Total	**0.16**	**1.11**	**1.24**	**0.00**	**0.08**	**0.04**

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Shuttle	60	1	0.16	1.11	1.24	0.00	0.05	0.04
Total Vehicle Exhaust			**0.16**	**1.11**	**1.24**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Shuttle	Paved	60	1	0.03	0.00
Worker Shuttle	Unpaved	0	1	0.00	0.00
Total Vehicle Fugitive				**0.03**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Table 38
Construction Greenhouse Gas Emissions

Emissions Summary

Source	CO_2e (MT)[a]
Equipment Exhaust	4,518
Motor Vehicle Exhaust	1,663
Project Total	***6,181***

Construction Equipment Exhaust - Substation Site

Equipment	Horse-Power	Hours/ Day Used	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Substation Grading							
Off-Highway Truck	300	8	1	90	54.4	0.005	54.5
Grader	350	1	1	90	9.4	0.007	9.5
Water Truck	350	8	2	90	69.6	0.007	69.7
Backhoe	350	6	1	90	42.1	0.002	42.1
Dozer	350	6	1	90	64.9	0.087	66.7
Lowboy Truck/Trailer	500	4	1	90	44.5	0.041	45.3
Substation Civil							
Excavator	152	4	1	60	8.0	0.001	8.043747
Foundation Auger	79	6	1	15	1.3	0.000	1.271261
Foundation Auger	79	3	1	15	0.6	0.000	0.635631
Backhoe	79	3	2	60	5.0	0.002	4.994448
Skip Loader	75	3	1	60	2.1	0.001	2.095733
Skid Steer Loader	75	3	2	60	4.2	0.001	4.191465
Forklift	83	4	1	60	1.6	0.001	1.610987
17 Ton Crane	125	2	1	45	2.0	0.000	2.055878
Substation Electrical							
Scissor Lift	87	3	2	70	3.7	0.001	3.763764
Manlift	43	3	2	70	2.1	0.000	2.095592
Reach Manlift	87	4	1	70	2.5	0.001	2.509176
15 Ton Crane	125	3	1	35	2.4	0.000	2.398524
Substation Wiring							
Manlift	43	4	1	25	0.5	0.000	0.49895
Substation Transformer							
Forklift	83	1	6	30	1.2	0.000	1.20824
Crane	125	1	6	10	1.4	0.000	1.370585
Substation Paving							
Paving Roller	46	4	2	15	0.7	0.000	0.72796
Asphalt Paver	152	4	1	15	1.9	0.000	1.891696
Asphalt Curb Machine	35	3	1	15	0.3	0.000	0.258361
Tractor	45	3	1	15	0.3	0.000	0.324627
Substation Fencing							
Skid Steer Loader	75	8	1	10	0.9	0.000	0.931437
Substation Landscaping							
Tractor	45	6	1	15	0.6	0.000	0.649254
Subtransmission Marshalling Yard							
1-Ton Crew Cab, 4x4	300	2	1	660	99.7	0.4	109.0
30-Ton Crane Truck	300	2	1	660	67.2	0.2	71.9
10,000 lb Rough Terrain Fork Lift	200	5	1	660	187.0	0.8	204.4
Truck, Semi, Tractor	350	1	1	660	39.0	0.2	43.2
Subtransmission ROW Clearing							
1-Ton Crew Cab, 4x4	300	8	1	1	0.6	0.0	0.6
Road Grader	350	6	1	1	0.6	0.0	0.6
Water Truck	350	8	2	1	2.0	0.0	2.0
Backhoe/Front Loader	350	6	1	1	0.9	0.0	0.9
Track Type Dozer	350	6	1	1	0.7	0.0	0.7
Lowboy Truck/Trailer	500	4	1	1	0.5	0.0	0.5
Subtransmission Line Roadway							
1-Ton Crew Cab, 4x4	300	2	2	35	10.576	0.005	10.681
Road Grader	350	4	1	35	14.573	0.004	14.667
Water Truck	350	8	2	35	69.177	0.049	70.214
Backhoe/Front Loader	350	6	1	35	29.654	0.015	29.963
Drum Type Compactor	250	4	1	35	15.529	0.001	15.556
Track Type Dozer	350	6	1	35	25.231	0.013	25.506
Excavator	300	6	1	18	11.450	0.002	11.486
Lowboy Truck/Trailer	500	2	1	18	4.447	0.001	4.464
Subtransmission Guard House Installation							
3/4-Ton Pick-up	300	6	2	6	5.439	0.000	5.448
1-Ton Crew Cab Flat Bed, 4x4	300	6	1	6	2.720	0.000	2.722
Compressor Trailer	120	6	1	6	0.767	0.000	0.767
Auger Truck	500	6	1	6	4.447	0.000	4.453
Extendable Flat Bed Pole Truck	350	6	1	6	2.720	0.000	2.722
30-Ton Crane Truck	500	8	1	6	3.921	0.000	3.925
80ft. Hydraulic Man-lift Bucket Truc	350	4	1	6	2.965	0.000	2.969
Subtransmission Pole Framing and Setting							
1-Ton Crew Cab, 4x4	300	5	3	19	21.530	0.008	21.703
10,000 lb/ Rough Terrain Forklift	200	4	1	2	0.453	0.000	0.453
30-Ton Crane	300	6	2	2	1.221	0.000	1.222
Compressor Trailer	120	6	3	19	7.283	0.002	7.320
Flat Bed Truck/Trailer	350	4	1	2	0.988	0.000	0.989
10-cu yd. Dump Truck	350	4	1	17	8.400	0.001	8.431
Backhoe/Front Loader	350	8	1	17	21.274	0.004	21.356
Subtransmission Line TSP Footing Installation							
1-Ton Crew Cab Flat Bed, 4x4	300	2	4	111	67.084	0.200	71.281
30-Ton Crane Truck	300	5	2	111	56.472	0.064	57.811
Backhoe	200	8	2	111	81.677	0.090	83.572
Auger Truck	500	6	2	75	111.178	0.170	114.750
4000 Gallon Water Truck	350	4	2	111	109.695	0.248	114.912
10-cu. yd. Dump Truck	350	5	2	111	137.119	0.311	143.640
10-cu. yd. Concrete Mixer Truck	425	5	3	75	129.738	0.204	134.016
Subtransmission Line Conductor Installation							
3/4-Ton Pick-up	300	8	2	38.000	45.931	0.023	46.423
1-Ton Crew Cab Flat Bed, 4x4	300	8	4	38.000	91.863	0.094	93.830

Table 38
Construction Greenhouse Gas Emissions

Wire Truck/Trailer	350	2	2	26.000	12.847	0.007	12.990
Dump Truck	350	2	1	38.000	9.388	0.004	9.465
Bucket Truck	350	8	2	38.000	75.107	0.058	76.329
22-Ton Manitex	350	8	2	38.000	73.198	0.057	74.393
Splicing Rig	350	2	1	10.000	2.471	0.000	2.476
Splicing Lab	300	2	1	10.000	2.306	0.000	2.310
3 Drum Straw line Puller	300	6	1	20.000	5.798	0.001	5.810
Static Truck/Tensioner	350	6	2	20.000	29.647	0.012	29.901
Subtransmission Assembly							
3/4-Ton Pick-up Truck, 4x4	300	5	5	37	69.9	0.1	71.701
1-Ton Crew Cab Flat Bed, 4x4	300	5	4	37	55.9	0.1	57.069
Compressor Trailer	120	5	2	37	7.9	0.0	7.931
80-Ton Rough Terrain Crane	350	6	3	37	54.4	0.0	55.354
40' Flat Bed Truck/Trailer	350	4	2	25	24.7	0.0	24.971
Subtransmission Guard House Removal							
3/4-Ton Pick-up	300	6	2	4	3.6	0.0	3.630
1-Ton Crew Cab Flat Bed, 4x4	300	6	2	4	3.6	0.0	3.630
Compressor Trailer	120	6	2	4	1.0	0.0	1.023
Extendable Flat Bed Pole Truck	350	6	2	4	5.9	0.0	5.940
30-Ton Crane Truck	500	8	1	4	2.6	0.0	2.616
80ft. Hydraulic Man-lift Bucket Truc	350	4	1	4	2.0	0.0	1.978
TOTAL							**2,342.0**

[a] Emissions [metric tons, MT] = Emission factor [lb/hr] x Operating time [hr/day] x Number x Days used [days] x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 43

Table 38
Construction Greenhouse Gas Emissions

Motor Vehicle Exhaust - Substation Site

Vehicle Type	Miles/ Day per Vehicle	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Substation Survey						
Pickup Truck	1	2	10	0.02	0.00	0.024811
Worker Commuting	40	4	10	0.80	0.00	0.796444
Substation Grading						
Water Truck	10	1	90	1.72	0.00	1.7204
Tool Truck	5	1	90	0.56	0.00	0.55824
Pickup Truck	20	1	90	2.23	0.00	2.232961
Dump Truck	5	44	90	37.82	0.00	37.8488
Worker Commuting	40	15	90	26.84	0.00	26.87998
Substation Civil						
Water Truck	10	1	60	1.15	0.00	1.146933
Tool Truck	5	1	60	0.37	0.00	0.37216
Dump Truck	10	1	60	1.15	0.00	1.146933
Worker Commuting	40	10	60	11.93	0.00	11.94666
Substation MEER						
Carry-all Truck	5	1	20	0.19	0.00	0.191156
Stake Truck	5	1	20	0.19	0.00	0.191156
Worker Commuting	40	4	20	1.59	0.00	1.592888
Substation Electrical						
Crew Truck	20	2	70	3.47	0.00	3.473495
Worker Commuting	40	10	70	13.92	0.00	13.93777
Substation Wiring						
Worker Commuting	40	5	25	2.49	0.00	2.488887
Substation Transformer						
Crew Truck	30	2	30	2.23	0.00	2.232961
Low Bed Truck	30	1	30	1.72	0.00	1.7204
Worker Commuting	40	6	30	3.58	0.00	3.583998
Substation Testing						
Crew Truck	20	1	80	1.98	0.00	1.984854
Worker Commuting	40	2	80	3.18	0.00	3.185776
Substation Maintenance						
Maintenance Truck	30	2	30	2.23	0.00	2.232961
Worker Commuting	32	1	31	0.49	0.00	0.493795
Substation Paving						
Crew Truck	30	2	15	1.12	0.00	1.11648
Stake Truck	10	1	15	0.29	0.00	0.286733
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	6	15	1.79	0.00	1.791999
Substation Fencing						
Flatbed Truck	10	1	10	0.19	0.00	0.191156
Pickup Truck	5	1	10	0.06	0.00	0.062027
Worker Commuting	40	4	10	0.80	0.00	0.796444
Substation Landscaping						
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	6	15	1.79	0.00	1.791999
Subtransmission Marshalling Yards						
Worker Commuting	40	4	660	52.48	0.00	52.57
Subtransmission ROW Clearing						
Worker Commuting	40	4	1	0.08	0.00	0.079644
Subtransmission Guard House Installation						
Worker Commuting	40	6	6	0.72	0.00	0.7168
Subtransmission Line Survey						
Pickup Truck	1	2	10	0.02	0.00	0.024811
Worker Commuting	40	4	10	0.80	0.00	0.796444
Subtransmission Line Roadway						
Worker Commuting	40	3	5	0.30	0.00	0.298666
Subtransmission Pole Framing and Setting						
Worker Commuting	40	6	113	13.48	0.00	13.49973
Subtransmission Line TSP Footing Installation						
Water Truck	20	2	33	2.52	0.00	2.523253
Crew Truck	20	2	33	1.64	0.00	1.637505
Concrete Truck	20	1	33	1.26	0.00	1.261627
Worker Commuting	40	14	33	9.18	0.00	9.198928
Subtransmission Line Conductor Installation						
Crew Truck	0.35	16	7	0.05	0.00	0.048629
Worker Commuting	40	16	7	2.23	0.00	2.230043
Subtransmission Line Assembly						
Worker Commuting	40	8	6	0.95	0.00	0.955733
Subtransmission Line Restoration						
Worker Commuting	40	5	4	0.40	0.00	0.398222
Fiber Optic Installation						
Pickup Truck	20	1	10	0.25	0.00	0.248107
Heavy Duty Truck	20	2	10	0.76	0.00	0.764622
Worker Commuting	40	4	10	0.80	0.00	0.796444
Subtransmission Guard House Removal						
Worker Commuting	40	6	4	0.48	0.00	0.477866
TOTAL						**217.1**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 44

Table 38
Construction Greenhouse Gas Emissions

Construction Equipment Exhaust - Compressor Station Site

Equipment	Horse-Power	Hours/Day Used	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Compressor Station Site Clearing							
D6 Dozer		5	1	21	5.4	0.0	5.447385
Grader		5	1	21	6.3	0.0	6.33784
Backhoe/Loader		5	2	21	6.4	0.0	6.382003
Sheep's Foot Vibrator Compactor (10 yards)		5	2	21	0.4	0.0	0.411827
Forklift		5	2	21	5.2	0.0	5.193898
Compressor Station Site Preparation							
D6 Dozer		5	1	87	22.5	0.0	22.56774
Grader		5	1	87	26.2	0.0	26.25677
Excavator		5	2	87	47.2	0.0	47.30152
Backhoe/Loader		5	2	87	26.4	0.0	26.43973
Sheep's Foot Vibrator Compactor (10 yards)		5	2	87	1.7	0.0	1.706139
Compressor Station Civil							
Drilling Rig		5	1	30	11.2	0.0	11.23018
Backhoe/Loader		5	2	129	39.1	0.0	39.20373
Forklift		5	1	129	15.9	0.0	15.95269
30 Ton Hydraulic Crane		4	1	129	30.1	0.0	30.18349
D6 Dozer		5	1	129	33.4	0.0	33.46251
Front End Loader		5	1	129	19.5	0.0	19.60187
Sheep's Foot Vibrator Compactor (10 yards)		5	1	129	1.3	0.0	1.264896
Compressor Station Mechanical							
30 Ton Hydraulic Crane		5	1	198	57.8	0.0	57.91018
50 Ton Hydraulic Crane		5	1	198	57.8	0.0	57.91018
200 Ton Crawler Crane		5	2	198	115.5	0.0	115.8204
Forklift		5	1	198	24.4	0.0	24.48552
Front End Loader		5	3	198	90.0	0.0	90.25976
Welders		5	1	198	11.5	0.0	11.56575
Compressor Station Electrical							
Front End Loader		5	1	152	23.0	0.0	23.09677
Generators		5	2	152	42.1	0.0	42.17834
Other Construction Equipment		5	2	152	84.6	0.0	84.7795
Compressor Station Paving							
Paving Roller		5	2	15	4.6	0.0	4.577418
Asphalt Paver		5	1	15	2.7	0.0	2.662787
Asphalt Curb Machine		5	1	15	2.3	0.0	2.354168
Tractor		5	1	15	2.3	0.0	2.279287
Compressor Station Fencing							
Skid Steer Loader		5	1	10	0.7	0.0	0.689758
Compressor Station Landscaping							
Tractor		5	1	15	2.3	0.0	2.279287
TOTAL							**821.8**

[a] Emissions [metric tons, MT] = Emission factor [lb/hr] x Operating time [hr/day] x Number x Days used [days] x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 43

Motor Vehicle Exhaust - Compressor Station Site

Vehicle Type	Miles/Day per Vehicle	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Compressor Station Survey						
Pickup Truck	5	1	20	0.12	0.00	0.124053
Worker Commuting	40	2	20	0.80	0.00	0.796444
Compressor Station Site Clearing						
Dump Truck	10	6	21	2.41	0.00	2.40856
6 Ton Truck	10	2	21	0.80	0.00	0.802853
Water Truck	20	1	21	0.80	0.00	0.802853
Pickup Truck	5	1	21	0.13	0.00	0.130256
Worker Commuting	40	50	21	20.87	0.00	20.90665
Compressor Station Site Preparation						
Dump Truck	10	6	87	9.97	0.00	9.978321
6 Ton Truck	10	2	87	3.32	0.00	3.326107
Water Truck	20	1	87	3.32	0.00	3.326107
Pickup Truck	5	1	87	0.54	0.00	0.539632
Worker Commuting	40	50	87	86.48	0.01	86.61328
Compressor Station Civil						
Water Truck	20	1	129	4.93	0.00	4.931814
Pickup Truck	10	15	129	23.98	0.00	24.00433
6 Ton Truck	20	7	129	34.50	0.00	34.5227
Worker Commuting	40	150	129	384.68	0.03	385.2798
Compressor Station Mechanical						
Pickup Truck	10	15	198	36.81	0.00	36.84386
6 Ton Truck	20	7	198	52.95	0.00	52.98832
Worker Commuting	40	150	198	590.44	0.04	591.3596
Compressor Station Electrical						
Pickup Truck	10	15	152	28.26	0.00	28.28417
Worker Commuting	40	50	152	151.09	0.01	151.3244
Compressor Station Paving						
Pickup Truck	10	2	15	0.37	0.00	0.37216
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	6	15	1.79	0.00	1.791999
Compressor Station Fencing						
Flatbed Truck	10	1	10	0.19	0.00	0.191156
Pickup Truck	10	1	10	0.12	0.00	0.124053
Worker Commuting	40	4	10	0.80	0.00	0.796444
Compressor Station Landscaping						
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	10	15	2.98	0.00	2.986665
TOTAL						**1,446.1**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 44

Table 38
Construction Greenhouse Gas Emissions

Worker Shuttle Exhaust

Vehicle Type	Miles/day	Number	Days Used	CO_2 (MT)	CH4 (MT)	CO_2e (MT)
Worker Shuttle	60.00	1.00	492	36.59	0.00	36.62056

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] 1,000,000 [g/MT]

Emission factors are in Table 44

Table 39
Operational Emissions

Net Overall Change in Daily Operational Mass Emissions

Source	Daily Mass Emissions (lbs/day)					
	ROG	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Vehicle Emissions	0.22	1.98	0.22	0.00	0.33	0.01
Decrease from removal of Jet Turbines	(27.32)	(417.19)	(1069.61)	(2.98)	(37.75)	(37.75)
Net Total	**(27.10)**	**(415.20)**	**(1069.39)**	**(2.98)**	**(37.42)**	**(37.73)**
Significance Threshold	*55*	*550*	*55*	*150*	*150*	*55*
Significant? (Yes/No)	***No***	***No***	***No***	***No***	***No***	***No***

Current Project Emissions Summary

Source	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.31	0.00
Total	**0.22**	**1.98**	**0.22**	**0.00**	**0.33**	**0.01**

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	60	4	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	60	10	0.31	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Emissions Decrease from Decommissioning of the Existing Jet Turbines

Source	Average Daily Fuel Use (MMscf/day)[1]	Daily Mass Emissions (lbs/day)				
		ROG	**CO**	**NOx**	**SO_X**	**PM_{10}**
Emission Factor (lb/MMscf)[2]		**5.50**	**84.00**	**--**	**0.60**	**7.60**
D-14	1.38	7.59	115.98	358.56	0.83	10.49
D-15	1.26	6.94	106.04	348.08	0.76	9.59
D-16	1.32	7.28	111.16	362.97	0.79	10.06
Decrease due to shutdown of Turbines[4]		**(27.32)**	**(417.19)**	**(1069.61)**	**(2.98)**	**(37.75)**

[1] Average Daily Fuel Use calculated from Annual Acutal Fuel Use from the CEMS data for years 2007 and 2008. Average Annual Fuel Use for the two years was divided by 365 for daily fuel use.

[2] Emission factors in lb/MMscf from AP42 - Table 1.4-1 and Table 1.4-2 for all pollutants except NOx. NOx emissions are calculated from Annual Nox emissions 2007 and 2008 (CEMS data)

Turbine Fuel Data

Equipment	Acutal Fuel Use (MMscf/year)		Actual Nox Emissions (lbs/year)		Average Annual		Average Daily		Peak Daily
	2007	**2008**	**2007**	**2008**	**MMscf/year**	**lbs/year**	**MMscf/day**	**lbs/day**	**MMscf/day**
D-14	500.34	507.60	130478.72	131269.05	503.97	130873.89	1.38	358.56	3.5053554
D-15	440.54	481.00	113772.60	140325.03	460.77	127048.82	1.26	348.08	3.5053554
D-16	502.37	463.70	139429.80	125539.50	483.04	132484.65	1.32	362.97	3.5053554

Source: Actuals from CEMS data provided by SCG. Peak daily from SCAQMD permit limit of 150 MMBtu/hour

Emissions Decrease from Decommissioning of the Existing Jet Turbines

Source	Peak Daily Fuel Use (MMscf/day)[1]	Daily Mass Emissions (lbs/day)				
		ROG	**CO**	**NOx**	**PM_{10}**	**SO_X**
Emission Factor (lb/MMscf)[2]		**5.50**	**84.00**	**--**	**7.60**	**0.60**
D-14	3.51	19.28	294.45	358.56	176.67	26.64
D-15	3.51	19.28	294.45	348.08	176.67	26.64
D-16	3.51	19.28	294.45	362.97	176.67	26.64
Decrease due to shutdown of Turbines[4]		**(63.34)**	**(967.35)**	**(1069.61)**	**(537.61)**	**(80.52)**

[1] Peak Daily Fuel Use is based on SCAQMD permit limit of 150 MMBtu/hour. Fuel use is calculated for natural gas heating value of 1027 btu/scf per SCG recommendation.

[2] Emission factors in lb/MMscf from AP42 - Table 1.4-1 and Table 1.4-2 for all pollutants except Nox. Nox emissions are calculated from Annual Nox emissions 2007 and 2008 (CEMS data)

Table 40
Operational Greenhouse Gas Emissions

Net GHG Emissions Summary

Source	CO2 Equivalents, metric tons/year
SF_6 Leakage	54
Motor Vehicle Exhaust	4
Compressor Electricity Use	138,709
Potential GHG Emissions from Current Project	**138,766**
Jet Turbine D14	(28,105)
Jet Turbine D15	(25,696)
Jet Turbine D16	(26,938)
Decrease in GHG due to Removal of Turbines	***(80,739)***
Net Total GHG Emissions	**58,027**

GHG emissions from the new electric driven compressors and exisitng jet turbines are based on maximum potential to emit for 8760 hours per year.

Current Project GHG Emissions Summary

Source	CO_2e (MT/year)
SF_6 Leakage	54
Motor Vehicle Exhaust	4
Compressor Electricity Use	138,709
TOTAL	**138,766**

SF_6 Leakage

Item	Value	Units
SF_6 per Breaker	30	pounds
No. Breakers	17	
Total SF_6	510	pounds
Annual Leakage Rate	1	percent
Annual Emissions	5.1	pounds
Global Warming Potential[a]	23,200	
CO_2e Emissions[b]	**54**	**MT/year**

[a] Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009
[b] CO_2e emissions [metric tons] per year = SF_6 emissions [lb] x Global warming potential [lb CO2e/lb SF6] x 453.6 [g/lb] /1,000,000 [g/MT]

Motor Vehicle Exhaust

Vehicle Type	Miles/ Day per Vehicle	Number	Annual Use (days)	CO_2 (MT)[a]	CH_4 (MT)[a]	CO_2e (MT)[b]
Worker Commuting	40	4	48	3.82	0.00	3.82
TOTAL						3.82

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Annual Use x 453.6 [g/lb] / 1,000,000 [g/MT]
[b] CO2e = CO2 + (21*CH4); where 21 is the GWP of methane.
Emission factors are in Table 44

GHG Emissions from New Electric VFD Motors - PTE (8760 hours)

Source	Annual Electricity Usage, MWh/yr[a]	Emission Factor (lb/MWh)[b] CO_2	Emission Factor (lb/MWh)[b] CH_4	Emission Factor (lb/MWh)[b] N_2O	Emissions (MT/yr) CO_2	Emissions (MT/yr) CH_4	Emissions (MT/yr) N_2O	Emissions (MT/yr) CO_2 e
VFD motor 1	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
VFD motor 2	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
VFD motor 3	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
							Total	**138,709**

[a] Annual electricity usage for each of the 16 MW VFD motors for a 24 hour operation for 365 days per year.
[b] Table C.2, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009

Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	21
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	310

GHG Emissions Decrease from Removal of Exisitng Jet Turbines - AER

Source	Annual Usage, MMBTU/yr[1]	Emission Factor (kg/MMBtu) CO_2[b]	Emission Factor (kg/MMBtu) CH_4[c]	Emission Factor (kg/MMBtu) N_2O[c]	Emissions (MT/yr) CO_2	Emissions (MT/yr) CH_4	Emissions (MT/yr) N_2O	Emissions (MT/yr) CO_2 e
Jet Turbine D14	529,169	53.06	0.001	0.0001	28,077.68	0.53	0.05	(28,105)
Jet Turbine D15	483,809	53.06	0.001	0.0001	25,670.88	0.48	0.05	(25,696)
Jet Turbine D16	507,187	53.06	0.001	0.0001	26,911.33	0.51	0.05	(26,938)
							Total Emission Decrease	**80,739**

[a] Annual Fuel suage per year was calculated from annual acutal fuel use from the CEMS data for years 2007 and 2008 and using a natural gas heating value 1027.
[b] Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009
[c] Table C.8, Industrial Sector, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009

Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	21
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	310

Table 41
Project Total GHG Emissions Summary

Source	CO_2e
Construction	
Equipment Exhaust (MT)	4,518
Motor Vehicle Exhaust (MT)	1,663
Total Construction Emissions (MT)	***6,181***
Total Construction Emissions Amortized over 30 years (MT/year)	***206***
Operation	
SF6 Leakage (MT/year)	54
Motor Vehicle Exhaust (MT/year)	4
Compressor Electricity Use (MT/year)	138,709
Potential GHG Emissions from Current Project (MT/year)	***138,766***
Jet Turbine D14 Operation (MT/year)	(69,789)
Jet Turbine D15 Operation (MT/year)	(69,789)
Jet Turbine D16 Operation (MT/year)	(69,789)
Decrease in GHG due to Removal of Turbines (MT/year)	***(209,368)***
Net Operational GHG Emissions (MT/year)	***(70,395)***
Total Project GHG Emissions (MT/year)	**(70,189)**
SCAQMD Interim Threshold (MT/year)	10,000
Significant (Yes/No)?	**No**

maximum potential to emit for 8760 hours per year.

Table 42 - Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

OffRoad 2010

Air Basin	SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)		(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM2.5**	**CO2**	**CH4**
Aerial Lifts	15	0.0104	0.0529	0.0662	0.0001	0.0037	0.0034	8.7	0.0009
	25	0.0210	0.0577	0.1013	0.0001	0.0065	0.0060	11.0	0.0019
	50	0.0756	0.1937	0.1984	0.0003	0.0189	0.0174	19.6	0.0068
	120	0.0702	0.2501	0.4502	0.0004	0.0361	0.0332	38.1	0.0063
	500	0.1506	0.5801	1.9198	0.0021	0.0598	0.0550	213	0.0136
	750	0.2803	1.0486	3.5605	0.0039	0.1096	0.1008	385	0.0253
Aerial Lifts Composite		0.0670	0.2093	0.3600	0.0004	0.0248	0.0228	34.7	0.0060
Air Compressors	15	0.0144	0.0513	0.0838	0.0001	0.0061	0.0056	7.2	0.0013
	25	0.0325	0.0847	0.1397	0.0002	0.0098	0.0091	14.4	0.0029
	50	0.1163	0.2813	0.2386	0.0003	0.0265	0.0243	22.3	0.0105
	120	0.1014	0.3351	0.5977	0.0006	0.0545	0.0501	47.0	0.0091
	175	0.1274	0.5113	1.0082	0.0010	0.0568	0.0523	88.5	0.0115
	250	0.1225	0.3413	1.3983	0.0015	0.0462	0.0425	131	0.0111
	500	0.1943	0.6778	2.2062	0.0023	0.0752	0.0692	232	0.0175
	750	0.3054	1.0476	3.5002	0.0036	0.1179	0.1085	358	0.0276
	1000	0.5203	1.8591	6.0195	0.0049	0.1809	0.1664	486	0.0469
Air Compressors Composite		0.1120	0.3613	0.7320	0.0007	0.0526	0.0484	63.6	0.0101
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0031	0.0028	10.3	0.0011
	25	0.0196	0.0660	0.1257	0.0002	0.0065	0.0059	16.0	0.0018
	50	0.0545	0.2505	0.2820	0.0004	0.0194	0.0178	31.0	0.0049
	120	0.0722	0.4812	0.6155	0.0009	0.0456	0.0419	77.1	0.0065
	175	0.0930	0.7543	0.9148	0.0016	0.0481	0.0443	141	0.0084
	250	0.0957	0.3460	1.1847	0.0021	0.0384	0.0353	188	0.0086
	500	0.1488	0.5566	1.7054	0.0031	0.0614	0.0565	311	0.0134
	750	0.2996	1.0997	3.4821	0.0062	0.1231	0.1132	615	0.0270
	1000	0.5360	1.7074	8.3092	0.0093	0.2078	0.1912	928	0.0484
Bore/Drill Rigs Composite		0.1052	0.5146	1.1331	0.0017	0.0498	0.0458	165	0.0095
Cement and Mortar Mixers	15	0.0079	0.0388	0.0505	0.0001	0.0029	0.0027	6.3	0.0007
	25	0.0346	0.0942	0.1633	0.0002	0.0107	0.0099	17.6	0.0031
Cement and Mortar Mixers Composite		0.0101	0.0434	0.0599	0.0001	0.0035	0.0033	7.2	0.0009
Concrete/Industrial Saws	25	0.0200	0.0678	0.1279	0.0002	0.0063	0.0058	16.5	0.0018
	50	0.1231	0.3210	0.3070	0.0004	0.0301	0.0277	30.2	0.0111
	120	0.1342	0.4976	0.8601	0.0009	0.0719	0.0662	74.1	0.0121

	175	0.1927	0.8786	1.6459	0.0018	0.0864	0.0794	160	0.0174
Concrete/Industrial Saws Composite		0.1270	0.4273	0.6566	0.0007	0.0552	0.0508	58.5	0.0115
Cranes	50	0.1284	0.3166	0.2547	0.0003	0.0289	0.0266	23.2	0.0116
	120	0.1117	0.3723	0.6542	0.0006	0.0602	0.0554	50.1	0.0101
	175	0.1211	0.4880	0.9302	0.0009	0.0538	0.0495	80.3	0.0109
	250	0.1243	0.3464	1.2372	0.0013	0.0470	0.0432	112	0.0112
	500	0.1821	0.6625	1.7722	0.0018	0.0685	0.0630	180	0.0164
	750	0.3082	1.1113	3.0564	0.0030	0.1166	0.1072	303	0.0278
	9999	1.0894	4.1317	12.1879	0.0098	0.3792	0.3489	971	0.0983
Cranes Composite		0.1594	0.5431	1.4515	0.0014	0.0642	0.0591	129	0.0144
Crawler Tractors	50	0.1446	0.3520	0.2780	0.0003	0.0320	0.0295	24.9	0.0131
	120	0.1551	0.5018	0.9038	0.0008	0.0819	0.0753	65.8	0.0140
	175	0.1941	0.7597	1.4788	0.0014	0.0856	0.0787	121	0.0175
	250	0.2051	0.5743	1.9440	0.0019	0.0784	0.0722	166	0.0185
	500	0.2913	1.1931	2.7255	0.0025	0.1101	0.1013	259	0.0263
	750	0.5240	2.1290	4.9881	0.0047	0.1989	0.1829	465	0.0473
	1000	0.7980	3.3726	8.5998	0.0066	0.2810	0.2585	658	0.0720
Crawler Tractors Composite		0.1861	0.6409	1.3854	0.0013	0.0854	0.0786	114	0.0168
Crushing/Proc. Equipment	50	0.2271	0.5592	0.4700	0.0006	0.0520	0.0478	44.0	0.0205
	120	0.1760	0.5956	1.0382	0.0010	0.0960	0.0883	83.1	0.0159
	175	0.2367	0.9736	1.8607	0.0019	0.1068	0.0982	167	0.0214
	250	0.2243	0.6225	2.5465	0.0028	0.0841	0.0773	245	0.0202
	500	0.3091	1.0542	3.4510	0.0037	0.1187	0.1092	374	0.0279
	750	0.4956	1.6226	5.6506	0.0059	0.1900	0.1748	589	0.0447
	9999	1.3820	4.8014	16.0752	0.0131	0.4812	0.4427	1,308	0.1247
Crushing/Proc. Equipment Composite		0.2152	0.7260	1.4394	0.0015	0.0935	0.0861	132	0.0194
Dumpers/Tenders	25	0.0108	0.0336	0.0645	0.0001	0.0036	0.0034	7.6	0.0010
Dumpers/Tenders Composite		0.0108	0.0336	0.0645	0.0001	0.0036	0.0034	7.6	0.0010
Excavators	25	0.0199	0.0677	0.1261	0.0002	0.0057	0.0052	16.4	0.0018
	50	0.1131	0.3145	0.2638	0.0003	0.0276	0.0254	25.0	0.0102
	120	0.1398	0.5318	0.8402	0.0009	0.0781	0.0718	73.6	0.0126
	175	0.1465	0.6701	1.1143	0.0013	0.0663	0.0610	112	0.0132
	250	0.1451	0.3934	1.4935	0.0018	0.0519	0.0478	159	0.0131
	500	0.1984	0.6161	1.9285	0.0023	0.0711	0.0654	234	0.0179
	750	0.3313	1.0196	3.3023	0.0039	0.1198	0.1102	387	0.0299
Excavators Composite		0.1483	0.5581	1.1502	0.0013	0.0638	0.0587	120	0.0134
Forklifts	50	0.0666	0.1824	0.1530	0.0002	0.0163	0.0150	14.7	0.0060
	120	0.0601	0.2243	0.3497	0.0004	0.0342	0.0315	31.2	0.0054
	175	0.0738	0.3306	0.5540	0.0006	0.0337	0.0310	56.1	0.0067
	250	0.0652	0.1707	0.7163	0.0009	0.0227	0.0209	77.1	0.0059
	500	0.0868	0.2343	0.8909	0.0011	0.0307	0.0282	111	0.0078
Forklifts Composite		0.0686	0.2319	0.5161	0.0006	0.0281	0.0258	54.4	0.0062

Generator Sets	15	0.0172	0.0726	0.1154	0.0002	0.0069	0.0063	10.2	0.0016
	25	0.0300	0.1033	0.1705	0.0002	0.0107	0.0098	17.6	0.0027
	50	0.1117	0.2904	0.3070	0.0004	0.0284	0.0261	30.6	0.0101
	120	0.1395	0.5054	0.9075	0.0009	0.0714	0.0657	77.9	0.0126
	175	0.1672	0.7471	1.4780	0.0016	0.0721	0.0663	142	0.0151
	250	0.1618	0.5018	2.0720	0.0024	0.0618	0.0569	213	0.0146
	500	0.2305	0.8858	2.9974	0.0033	0.0917	0.0844	337	0.0208
	750	0.3838	1.4300	4.9646	0.0055	0.1502	0.1381	544	0.0346
	9999	1.0080	3.6008	12.1384	0.0105	0.3600	0.3312	1,049	0.0909
Generator Sets Composite		0.0961	0.3293	0.6440	0.0007	0.0396	0.0365	61.0	0.0087
Graders	50	0.1400	0.3584	0.2961	0.0004	0.0323	0.0297	27.5	0.0126
	120	0.1553	0.5459	0.9268	0.0009	0.0849	0.0781	75.0	0.0140
	175	0.1743	0.7409	1.3532	0.0014	0.0783	0.0720	124	0.0157
	250	0.1761	0.4934	1.7904	0.0019	0.0662	0.0609	172	0.0159
	500	0.2149	0.7523	2.1198	0.0023	0.0807	0.0742	229	0.0194
	750	0.4580	1.5877	4.6098	0.0049	0.1729	0.1591	486	0.0413
Graders Composite		0.1723	0.6314	1.4338	0.0015	0.0753	0.0693	133	0.0155
Off-Highway Tractors	120	0.2457	0.7439	1.4200	0.0011	0.1255	0.1155	93.7	0.0222
	175	0.2326	0.8561	1.7665	0.0015	0.1014	0.0933	130	0.0210
	250	0.1881	0.5347	1.7050	0.0015	0.0735	0.0677	130	0.0170
	750	0.7400	3.5496	6.8440	0.0057	0.2854	0.2625	568	0.0668
	1000	1.1197	5.5155	11.4633	0.0082	0.4009	0.3688	814	0.1010
Off-Highway Tractors Composite		0.2368	0.8385	1.9897	0.0017	0.0974	0.0896	151	0.0214
Off-Highway Trucks	175	0.1732	0.7625	1.2796	0.0014	0.0771	0.0710	125	0.0156
	250	0.1639	0.4301	1.6150	0.0019	0.0574	0.0528	167	0.0148
	500	0.2492	0.7542	2.3188	0.0027	0.0872	0.0802	272	0.0225
	750	0.4069	1.2210	3.8814	0.0044	0.1436	0.1321	442	0.0367
	1000	0.6440	2.0615	7.3260	0.0063	0.2219	0.2041	625	0.0581
Off-Highway Trucks Composite		0.2480	0.7429	2.3885	0.0027	0.0875	0.0805	260	0.0224
Other Construction Equipme	15	0.0118	0.0617	0.0737	0.0002	0.0030	0.0028	10.1	0.0011
	25	0.0162	0.0545	0.1039	0.0002	0.0053	0.0049	13.2	0.0015
	50	0.1033	0.2930	0.2787	0.0004	0.0263	0.0242	28.0	0.0093
	120	0.1320	0.5419	0.8649	0.0009	0.0740	0.0681	80.9	0.0119
	175	0.1168	0.5901	0.9927	0.0012	0.0543	0.0499	107	0.0105
	500	0.1705	0.6068	1.9821	0.0025	0.0678	0.0624	254	0.0154
Other Construction Equipment Composite		0.1056	0.4108	1.0117	0.0013	0.0442	0.0406	123	0.0095
Other General Industrial Equ	15	0.0066	0.0391	0.0466	0.0001	0.0017	0.0016	6.4	0.0006
	25	0.0186	0.0632	0.1177	0.0002	0.0054	0.0049	15.3	0.0017
	50	0.1281	0.3073	0.2413	0.0003	0.0285	0.0263	21.7	0.0116
	120	0.1459	0.4647	0.8218	0.0007	0.0795	0.0731	62.0	0.0132
	175	0.1516	0.5816	1.1364	0.0011	0.0676	0.0622	95.9	0.0137
	250	0.1400	0.3676	1.5016	0.0015	0.0509	0.0469	136	0.0126

	500	0.2500	0.8031	2.6018	0.0026	0.0919	0.0845	265	0.0226
	750	0.4153	1.3236	4.4083	0.0044	0.1538	0.1415	437	0.0375
	1000	0.6374	2.2063	7.1530	0.0056	0.2212	0.2035	560	0.0575
Other General Industrial Equipmen Compo		0.1847	0.5948	1.6649	0.0016	0.0740	0.0681	152	0.0167
Other Material Handling Equ	50	0.1773	0.4246	0.3355	0.0004	0.0395	0.0363	30.3	0.0160
	120	0.1417	0.4524	0.8014	0.0007	0.0772	0.0710	60.7	0.0128
	175	0.1914	0.7367	1.4429	0.0014	0.0856	0.0787	122	0.0173
	250	0.1481	0.3917	1.6024	0.0016	0.0542	0.0499	145	0.0134
	500	0.1782	0.5784	1.8750	0.0019	0.0660	0.0607	192	0.0161
	9999	0.8390	2.9174	9.4509	0.0073	0.2912	0.2679	741	0.0757
Other Material Handling Equipment Compo		0.1773	0.5556	1.6150	0.0015	0.0715	0.0658	141	0.0160
Pavers	25	0.0278	0.0845	0.1603	0.0002	0.0092	0.0085	18.7	0.0025
	50	0.1624	0.3860	0.3110	0.0004	0.0356	0.0328	28.0	0.0147
	120	0.1638	0.5223	0.9693	0.0008	0.0853	0.0785	69.2	0.0148
	175	0.2049	0.7959	1.6028	0.0014	0.0903	0.0831	128	0.0185
	250	0.2426	0.7011	2.3337	0.0022	0.0953	0.0877	194	0.0219
	500	0.2622	1.1661	2.5319	0.0023	0.1023	0.0941	233	0.0237
Pavers Composite		0.1774	0.5644	0.9868	0.0009	0.0709	0.0652	77.9	0.0160
Paving Equipment	25	0.0155	0.0521	0.0993	0.0002	0.0051	0.0047	12.6	0.0014
	50	0.1384	0.3277	0.2654	0.0003	0.0303	0.0279	23.9	0.0125
	120	0.1282	0.4084	0.7600	0.0006	0.0668	0.0615	54.5	0.0116
	175	0.1599	0.6208	1.2577	0.0011	0.0704	0.0648	101	0.0144
	250	0.1506	0.4363	1.4619	0.0014	0.0592	0.0545	122	0.0136
Paving Equipment Composite		0.1336	0.4478	0.8963	0.0008	0.0629	0.0579	68.9	0.0121
Plate Compactors	15	0.0050	0.0263	0.0317	0.0001	0.0015	0.0014	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0317	0.0001	0.0015	0.0014	4.3	0.0005
Pressure Washers	15	0.0083	0.0348	0.0553	0.0001	0.0033	0.0030	4.9	0.0007
	25	0.0122	0.0419	0.0691	0.0001	0.0043	0.0040	7.1	0.0011
	50	0.0413	0.1143	0.1388	0.0002	0.0115	0.0106	14.3	0.0037
	120	0.0388	0.1487	0.2674	0.0003	0.0193	0.0177	24.1	0.0035
Pressure Washers Composite		0.0199	0.0666	0.0989	0.0001	0.0070	0.0065	9.4	0.0018
Pumps	15	0.0148	0.0528	0.0862	0.0001	0.0062	0.0057	7.4	0.0013
	25	0.0439	0.1142	0.1884	0.0002	0.0133	0.0122	19.5	0.0040
	50	0.1339	0.3428	0.3479	0.0004	0.0333	0.0306	34.3	0.0121
	120	0.1441	0.5136	0.9216	0.0009	0.0744	0.0685	77.9	0.0130
	175	0.1709	0.7489	1.4815	0.0016	0.0742	0.0683	140	0.0154
	250	0.1593	0.4846	1.9941	0.0023	0.0609	0.0560	201	0.0144
	500	0.2450	0.9411	3.1080	0.0034	0.0973	0.0895	345	0.0221
	750	0.4167	1.5559	5.2721	0.0057	0.1631	0.1500	571	0.0376
	9999	1.3269	4.8008	15.8590	0.0136	0.4723	0.4345	1,355	0.1197
Pumps Composite		0.0936	0.3096	0.5545	0.0006	0.0393	0.0362	49.6	0.0084
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0019	0.0017	6.3	0.0007

	25	0.0164	0.0551	0.1049	0.0002	0.0054	0.0050	13.3	0.0015
	50	0.1270	0.3169	0.2753	0.0003	0.0292	0.0269	26.0	0.0115
	120	0.1201	0.4177	0.7383	0.0007	0.0641	0.0590	59.0	0.0108
	175	0.1478	0.6270	1.2022	0.0012	0.0659	0.0606	108	0.0133
	250	0.1542	0.4540	1.6232	0.0017	0.0603	0.0555	153	0.0139
	500	0.1987	0.7785	2.0882	0.0022	0.0783	0.0721	219	0.0179
Rollers Composite		0.1176	0.4212	0.7749	0.0008	0.0547	0.0503	67.1	0.0106
Rough Terrain Forklifts	50	0.1590	0.4186	0.3558	0.0004	0.0377	0.0347	33.9	0.0143
	120	0.1213	0.4447	0.7326	0.0007	0.0676	0.0621	62.4	0.0109
	175	0.1640	0.7302	1.2875	0.0014	0.0749	0.0689	125	0.0148
	250	0.1523	0.4270	1.6632	0.0019	0.0567	0.0521	171	0.0137
	500	0.2097	0.6871	2.1987	0.0025	0.0788	0.0725	257	0.0189
Rough Terrain Forklifts Composite		0.1272	0.4766	0.7988	0.0008	0.0678	0.0624	70.3	0.0115
Rubber Tired Dozers	175	0.2398	0.8686	1.7881	0.0015	0.1036	0.0953	129	0.0216
	250	0.2776	0.7758	2.4482	0.0021	0.1071	0.0986	183	0.0250
	500	0.3621	1.7411	3.2071	0.0026	0.1370	0.1260	265	0.0327
	750	0.5457	2.6075	4.9024	0.0040	0.2071	0.1906	399	0.0492
	1000	0.8464	4.1786	8.4813	0.0060	0.3018	0.2776	592	0.0764
Rubber Tired Dozers Composite		0.3379	1.4127	2.9891	0.0025	0.1288	0.1185	239	0.0305
Rubber Tired Loaders	25	0.0206	0.0697	0.1314	0.0002	0.0064	0.0059	16.9	0.0019
	50	0.1560	0.4005	0.3333	0.0004	0.0361	0.0332	31.1	0.0141
	120	0.1206	0.4268	0.7227	0.0007	0.0660	0.0608	58.9	0.0109
	175	0.1476	0.6326	1.1513	0.0012	0.0664	0.0611	106	0.0133
	250	0.1493	0.4210	1.5357	0.0017	0.0563	0.0518	149	0.0135
	500	0.2172	0.7648	2.1684	0.0023	0.0819	0.0754	237	0.0196
	750	0.4484	1.5625	4.5660	0.0049	0.1700	0.1564	486	0.0405
	1000	0.6154	2.2308	7.1368	0.0060	0.2156	0.1983	594	0.0555
Rubber Tired Loaders Composite		0.1440	0.5078	1.1537	0.0012	0.0651	0.0599	109	0.0130
Scrapers	120	0.2236	0.7169	1.3034	0.0011	0.1177	0.1083	93.9	0.0202
	175	0.2391	0.9290	1.8284	0.0017	0.1053	0.0969	148	0.0216
	250	0.2618	0.7368	2.4818	0.0024	0.1006	0.0926	209	0.0236
	500	0.3650	1.5182	3.4250	0.0032	0.1386	0.1275	321	0.0329
	750	0.6328	2.6115	6.0373	0.0056	0.2413	0.2220	555	0.0571
Scrapers Composite		0.3202	1.2424	2.9078	0.0027	0.1256	0.1155	262	0.0289
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	0.0016	6.2	0.0006
	50	0.1492	0.3827	0.3689	0.0005	0.0364	0.0335	36.2	0.0135
	120	0.1495	0.5380	0.9446	0.0009	0.0792	0.0728	80.2	0.0135
	175	0.1907	0.8437	1.6203	0.0017	0.0846	0.0778	155	0.0172
	250	0.2049	0.6138	2.5094	0.0029	0.0789	0.0726	255	0.0185
Signal Boards Composite		0.0224	0.0953	0.1615	0.0002	0.0091	0.0084	16.7	0.0020
Skid Steer Loaders	25	0.0249	0.0700	0.1252	0.0002	0.0079	0.0073	13.8	0.0022
	50	0.0785	0.2507	0.2463	0.0003	0.0217	0.0199	25.5	0.0071

	120	0.0607	0.2822	0.4131	0.0005	0.0355	0.0327	42.8	0.0055
Skid Steer Loaders Composite		0.0692	0.2489	0.2919	0.0004	0.0252	0.0232	30.3	0.0062
Surfacing Equipment	50	0.0589	0.1520	0.1451	0.0002	0.0142	0.0131	14.1	0.0053
	120	0.1192	0.4334	0.7683	0.0007	0.0624	0.0574	63.8	0.0108
	175	0.1071	0.4787	0.9169	0.0010	0.0472	0.0435	85.8	0.0097
	250	0.1254	0.3883	1.3783	0.0015	0.0494	0.0455	135	0.0113
	500	0.1854	0.7785	2.0517	0.0022	0.0741	0.0682	221	0.0167
	750	0.2960	1.2171	3.2929	0.0035	0.1173	0.1079	347	0.0267
Surfacing Equipment Composite		0.1550	0.6164	1.5685	0.0017	0.0606	0.0557	166	0.0140
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0033	0.0030	11.9	0.0011
	25	0.0239	0.0808	0.1524	0.0002	0.0075	0.0069	19.6	0.0022
	50	0.1508	0.3893	0.3297	0.0004	0.0355	0.0327	31.6	0.0136
	120	0.1490	0.5329	0.8645	0.0009	0.0843	0.0776	75.0	0.0134
	175	0.1856	0.8049	1.4276	0.0016	0.0854	0.0786	139	0.0167
	250	0.1344	0.3643	1.5598	0.0018	0.0489	0.0450	162	0.0121
Sweepers/Scrubbers Composite		0.1548	0.5380	0.8473	0.0009	0.0686	0.0631	78.5	0.0140
Tractors/Loaders/Backhoes	25	0.0214	0.0681	0.1317	0.0002	0.0072	0.0066	15.9	0.0019
	50	0.1257	0.3548	0.3114	0.0004	0.0312	0.0287	30.3	0.0113
	120	0.0910	0.3623	0.5664	0.0006	0.0515	0.0474	51.7	0.0082
	175	0.1216	0.5881	0.9646	0.0011	0.0562	0.0517	101	0.0110
	250	0.1418	0.4037	1.5493	0.0019	0.0523	0.0482	172	0.0128
	500	0.2630	0.8495	2.7242	0.0039	0.0980	0.0901	345	0.0237
	750	0.3986	1.2725	4.2276	0.0058	0.1496	0.1376	517	0.0360
Tractors/Loaders/Backhoes Composite		0.1021	0.3930	0.6747	0.0008	0.0521	0.0479	66.8	0.0092
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0023	0.0021	8.5	0.0009
	25	0.0400	0.1355	0.2555	0.0004	0.0125	0.0115	32.9	0.0036
	50	0.1837	0.4365	0.3620	0.0004	0.0405	0.0373	32.9	0.0166
	120	0.1509	0.4840	0.9082	0.0008	0.0776	0.0714	64.9	0.0136
	175	0.2254	0.8843	1.7973	0.0016	0.0990	0.0911	144	0.0203
	250	0.2770	0.8161	2.6802	0.0025	0.1103	0.1015	223	0.0250
	500	0.3468	1.6352	3.4013	0.0031	0.1373	0.1264	311	0.0313
	750	0.6586	3.0677	6.5218	0.0059	0.2602	0.2394	587	0.0594
Trenchers Composite		0.1675	0.4907	0.7598	0.0007	0.0637	0.0586	58.7	0.0151
Welders	15	0.0124	0.0441	0.0720	0.0001	0.0052	0.0048	6.2	0.0011
	25	0.0254	0.0661	0.1091	0.0001	0.0077	0.0071	11.3	0.0023
	50	0.1231	0.3025	0.2724	0.0003	0.0287	0.0264	26.0	0.0111
	120	0.0807	0.2738	0.4899	0.0005	0.0428	0.0394	39.5	0.0073
	175	0.1333	0.5515	1.0896	0.0011	0.0590	0.0542	98.2	0.0120
	250	0.1052	0.3022	1.2367	0.0013	0.0400	0.0368	119	0.0095
	500	0.1327	0.4823	1.5648	0.0016	0.0520	0.0479	168	0.0120
Welders Composite		0.0805	0.2246	0.2920	0.0003	0.0270	0.0248	25.6	0.0073

Table 43
Off-road Exhaust Emission Factors - Year 2010

Equipment Type	Fuel	Horse-power	SCAQMD Off-Road Model Category		ROG (lb/hr)[a]	CO (lb/hr)[a]	NO_X (lb/hr)[a]	SO_X (lb/hr)[a]	PM_{10} (lb/hr)[a]	$PM_{2.5}$ (lb/hr)[b]	CO_2 (lb/hr)[a]	CH_4 (lb/hr)[a]
Dozer	Diesel	305	Rubber Tired Dozers	Dozer 0305	0.278	0.776	2.448	0.002	0.107	0.099	183.487	0.025
Loader	Diesel	147	Tractors/Loaders/Backhoes	Loader 0147	0.091	0.362	0.566	0.001	0.052	0.047	51.728	0.008
Scraper	Diesel	267	Scrapers	Scraper 0267	0.262	0.737	2.482	0.002	0.101	0.093	209.470	0.024
Grader	Diesel	110	Graders	Grader 0110	0.172	0.631	1.434	0.001	0.075	0.069	132.743	0.016
Grader	Diesel	350	Graders	Grader 0350	0.1723	0.6314	1.4338	0.0015	0.0753	0.069	132.743	0.0155
Backhoe	Diesel	79	Tractors/Loaders/Backhoes	Backhoe 0079	0.126	0.355	0.311	0.000	0.031	0.029	30.347	0.011
Backhoe	Diesel	350	Tractors/Loaders/Backhoes	Backhoe 0350	0.142	0.404	1.549	0.002	0.052	0.048	171.737	0.0092
Tamper	Diesel	174	Rollers	Tamper 0174	0.120	0.418	0.738	0.001	0.064	0.059	58.989	0.011
Excavator	Diesel	152	Excavators	Excavator 0152	0.140	0.532	0.840	0.001	0.078	0.072	73.623	0.013
Foundation Auger	Diesel	79	Bore/Drill Rigs	Foundation Auger 0079	0.054	0.250	0.282	0.000	0.019	0.018	31.037	0.005
Skip Loader	Diesel	75	Skid Steer Loaders	Skip Loader 0075	0.078	0.251	0.246	0.000	0.022	0.020	25.519	0.007
Skid Steer Loader	Diesel	75	Skid Steer Loaders	Skid Steer Loader 0075	0.078	0.251	0.246	0.000	0.022	0.020	25.519	0.007
Forklift	Diesel	83	Forklifts	Forklift 0083	0.067	0.182	0.153	0.000	0.016	0.015	14.672	0.006
17 Ton Crane	Diesel	125	Cranes	17 Ton Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
Scissor Lift	Diesel	87	Aerial Lifts	Scissor Lift 0087	0.076	0.194	0.198	0.000	0.019	0.017	19.613	0.007
Manlift	Diesel	43	Aerial Lifts	Manlift 0043	0.021	0.058	0.101	0.000	0.007	0.006	10.960	0.002
Reach Manlift	Diesel	87	Aerial Lifts	Reach Manlift 0087	0.076	0.194	0.198	0.000	0.019	0.017	19.613	0.007
15 Ton Crane	Diesel	125	Cranes	15 Ton Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
Crane	Diesel	125	Cranes	Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
Paving Roller	Diesel	46	Rollers	Paving Roller 0046	0.016	0.055	0.105	0.000	0.005	0.005	13.343	0.001
Asphalt Paver	Diesel	152	Pavers	Asphalt Paver 0152	0.164	0.522	0.969	0.001	0.085	0.079	69.196	0.015
Asphalt Curb Machine	Diesel	35	Paving Equipment	Asphalt Curb Machine 0035	0.016	0.052	0.099	0.000	0.005	0.005	12.628	0.001
Tractor	Diesel	45	Tractors/Loaders/Backhoes	Tractor 0045	0.021	0.068	0.132	0.000	0.007	0.007	15.863	0.002
Dozer, D6	Diesel	165	Crawler Tractors	Dozer, D6 0165	0.155	0.502	0.904	0.001	0.082	0.075	65.811	0.014
Dozer, D8	Diesel	305	Crawler Tractors	Dozer, D8 0305	0.205	0.574	1.944	0.002	0.078	0.072	166.132	0.019
Truck Mounted Crane	Diesel	235	Cranes	Truck Mounted Crane 0235	0.121	0.488	0.930	0.001	0.054	0.050	80.345	0.011
Conductor Pulling Machine	Diesel	120	Other Construction Equipment	Conductor Pulling Machine 0120	0.132	0.542	0.865	0.001	0.074	0.068	80.859	0.012
Conductor Tensioner	Diesel	120	Other Construction Equipment	Conductor Tensioner 0120	0.132	0.542	0.865	0.001	0.074	0.068	80.859	0.012
30 Ton Crane	Diesel	125	Cranes	30 Ton Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
31 Ton Crane	Diesel	300	Cranes	31 Ton Crane 0300	0.124	0.346	1.237	0.001	0.047	0.043	112.159	0.011
Drilling Rig	Diesel	190	Bore/Drill Rigs	Drilling Rig 0190	0.093	0.754	0.915	0.002	0.048	0.044	141.076	0.008
Water Truck	Diesel	350	Other Construction Equipment	Water Truck 0350	0.117	0.590	0.993	0.001	0.054	0.050	106.516	0.011
50 Ton Hydraulic Crane	Diesel		Cranes	50 Ton Hydraulic Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
30 Ton Hydraulic Crane	Diesel		Cranes	30 Ton Hydraulic Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
200 Ton Crawler Crane	Diesel		Cranes	200 Ton Crawler Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Forklift	Diesel		Forklifts	Forklift 0000	0.069	0.232	0.516	0.001	0.028	0.026	54.396	0.006
Backhoe/Loader	Diesel		Tractors/Loaders/Backhoes	Backhoe/Loader 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Grader	Diesel		Graders	Grader 0000	0.172	0.631	1.434	0.001	0.075	0.069	132.743	0.016
D6 Dozer	Diesel		Crawler Tractors	D6 Dozer 0000	0.186	0.641	1.385	0.001	0.085	0.079	114.021	0.017
Sheep's Foot Vibrator Compactor (10 yards)	Diesel		Plate Compactors	ep's Foot Vibrator Compactor (10 yards)	0.005	0.026	0.032	0.000	0.002	0.001	4.314	0.000
Excavators	Diesel		Excavators	Excavators 0000	0.148	0.558	1.150	0.001	0.064	0.059	119.581	0.013
Front End Loader	Diesel		Tractors/Loaders/Backhoes	Front End Loader 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Drilling Rig	Diesel		Bore/Drill Rigs	Drilling Rig 0000	0.105	0.515	1.133	0.002	0.050	0.046	164.853	0.009
Paver/Sealer	Diesel		Pavers	Paver/Sealer 0000	0.177	0.564	0.987	0.001	0.071	0.065	77.935	0.016
Welders	Diesel		Welders	Welders 0000	0.081	0.225	0.292	0.000	0.027	0.025	25.603	0.007
Generators	Diesel		Generator Sets	Generators 0000	0.096	0.329	0.644	0.001	0.040	0.036	60.993	0.009
Other Construction Equipment	Diesel		Other Construction Equipment	Other Construction Equipment 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Off-Highway Trucks	Diesel		Other Construction Equipment	Off-Highway Trucks 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Lowboy Truck/Trailer	Diesel	500	Other Construction Equipment	Lowboy Truck/Trailer 0500	0.171	0.607	1.982	0.002	0.068	0.062	254.238	0.015
Forklift	Diesel		Other Construction Equipment	Forklift 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Compressor Trailer	Diesel	120	Other Construction Equipment	Compressor Trailer 0120	0.132	0.542	0.865	0.001	0.074	0.068	80.859	0.012
Off-Highway Trucks	Diesel		Off-Highway Trucks	Off-Highway Trucks 0000	0.248	0.743	2.388	0.003	0.088	0.081	260.104	0.022
Dozer	Diesel		Rubber Tired Dozers	Dozer 0000	0.2776	1.413	2.989	0.002	0.129	0.118	239.101	0.030
Loader	Diesel		Tractors/Loaders/Backhoes	Loader 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Scraper	Diesel		Scrapers	Scraper 0000	0.320	1.242	2.908	0.003	0.126	0.116	262.499	0.029
Grader	Diesel		Graders	Grader 0000	0.172	0.631	1.434	0.001	0.075	0.069	132.743	0.016
Backhoe	Diesel		Tractors/Loaders/Backhoes	Backhoe 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Tamper	Diesel		Rollers	Tamper 0000	0.118	0.421	0.775	0.001	0.055	0.050	67.052	0.011
Excavator	Diesel		Excavators	Excavator 0000	0.148	0.558	1.150	0.001	0.064	0.059	119.581	0.013
Foundation Auger	Diesel		Bore/Drill Rigs	Foundation Auger 0000	0.105	0.515	1.133	0.002	0.050	0.046	164.853	0.009
Skip Loader	Diesel		Skid Steer Loaders	Skip Loader 0000	0.069	0.249	0.292	0.000	0.025	0.023	30.281	0.006
Skid Steer Loader	Diesel		Skid Steer Loaders	Skid Steer Loader 0000	0.069	0.249	0.292	0.000	0.025	0.023	30.281	0.006
Forklift	Diesel		Forklifts	Forklift 0000	0.069	0.232	0.516	0.001	0.028	0.026	54.396	0.006
17 Ton Crane	Diesel		Cranes	17 Ton Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Scissor Lift	Diesel		Aerial Lifts	Scissor Lift 0000	0.067	0.209	0.360	0.000	0.025	0.023	34.722	0.006
Manlift	Diesel		Aerial Lifts	Manlift 0000	0.067	0.209	0.360	0.000	0.025	0.023	34.722	0.006
Reach Manlift	Diesel		Aerial Lifts	Reach Manlift 0000	0.067	0.209	0.360	0.000	0.025	0.023	34.722	0.006
15 Ton Crane	Diesel		Cranes	15 Ton Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Crane	Diesel		Cranes	Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Paving Roller	Diesel		Rollers	Paving Roller 0000	0.118	0.421	0.775	0.001	0.055	0.050	67.052	0.011
Asphalt Paver	Diesel		Pavers	Asphalt Paver 0000	0.177	0.564	0.987	0.001	0.071	0.065	77.935	0.016
Asphalt Curb Machine	Diesel		Paving Equipment	Asphalt Curb Machine 0000	0.134	0.448	0.896	0.001	0.063	0.058	68.946	0.012
Tractor	Diesel		Tractors/Loaders/Backhoes	Tractor 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Dozer, D6	Diesel		Crawler Tractors	Dozer, D6 0000	0.186	0.641	1.385	0.001	0.085	0.079	114.021	0.017
Dozer, D8	Diesel		Crawler Tractors	Dozer, D8 0000	0.186	0.641	1.385	0.001	0.085	0.079	114.021	0.017
Truck Mounted Crane	Diesel		Cranes	Truck Mounted Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Conductor Pulling Machine	Diesel		Other Construction Equipment	Conductor Pulling Machine 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Conductor Tensioner	Diesel		Other Construction Equipment	Conductor Tensioner 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
30 Ton Crane	Diesel		Cranes	30 Ton Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Drilling Rig	Diesel		Bore/Drill Rigs	Drilling Rig 0000	0.105	0.515	1.133	0.002	0.050	0.046	164.853	0.009
Air Compressors	Diesel		Air Compressors	Air Compressors 0000	0.112	0.361	0.732	0.001	0.053	0.048	63.607	0.010

[a] SCAQMD CEQA Air Quality Guidance Handbook - Offroad Mobile Source Emission Factors; where bhp not available, SCAQMD composite emission factors were used 0000

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Diesel Engine **0.920**

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Table 44

Onroad Emission Factor Summary

Vechile Type	SCAQMD EF Classification	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$	CO_2	CH_4
		2010							
Water Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Dump Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Carry-all Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Stake Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Low Bed Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Flatbed Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Line Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Concrete Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Heavy Duty Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
6 Ton Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Dump Truck (10 yards)	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Dump Truck (20 yards)	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Water Truck (2000 gallons)	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Worker Shuttle	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Pickup Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Crew Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Maintenance Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Tool Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Light Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Bucket Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Framing Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
3/4-Ton Pickup	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Worker Commuting	Passenger	0.00091	0.00826	0.00092	0.00001	0.00009	0.00005	1.09568	0.00008

[a] SCAQMD CEQA Air Quality Guidance Handbook - Onroad - EMFAC 2007 Emission Factors

PM10 and PM2.5 includes exhaust + tire and brake wear emissions

Table 45
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface		Silt Loading (sL, g/m2) or Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	PM10 Emission Factor (lb/VMT)[c]	PM2.5 Emission Factor (lb/VMT)[c]
Water Truck	Paved	Water TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Water Truck	Unpaved	Water TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Tool Truck	Paved	Tool TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Tool Truck	Unpaved	Tool TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Pickup Truck	Paved	Pickup TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Pickup Truck	Unpaved	Pickup TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Dump Truck	Paved	Dump TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Dump Truck	Unpaved	Dump TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Dump Truck (10 yards)	Paved	ump Truck (10 yards)Pave	0.035	2.7	5.15E-04	0.00E+00
Dump Truck (10 yards)	Unpaved	mp Truck (10 yards)Unpav	7.5	17	2.14E+00	2.14E-01
Dump Truck (20 yards)	Paved	ump Truck (20 yards)Pave	0.035	2.7	5.15E-04	0.00E+00
Dump Truck (20 yards)	Unpaved	mp Truck (20 yards)Unpav	7.5	17	2.14E+00	2.14E-01
6 Ton Truck	Paved	6 Ton TruckPaved	0.035	2.7	5.15E-04	0.00E+00
6 Ton Truck	Unpaved	6 Ton TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Carry-all Truck	Paved	Carry-all TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Carry-all Truck	Unpaved	Carry-all TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Stake Truck	Paved	Stake TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Stake Truck	Unpaved	Stake TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Crew Truck	Paved	Crew TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Crew Truck	Unpaved	Crew TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Low Bed Truck	Paved	Low Bed TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Low Bed Truck	Unpaved	Low Bed TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Maintenance Truck	Paved	Maintenance TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Maintenance Truck	Unpaved	laintenance TruckUnpave	7.5	17	2.14E+00	2.14E-01
Tractor	Paved	TractorPaved	0.035	2.7	5.15E-04	0.00E+00
Tractor	Unpaved	TractorUnpaved	7.5	17	2.14E+00	2.14E-01
Flatbed Truck	Paved	Flatbed TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Flatbed Truck	Unpaved	Flatbed TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Light Truck	Paved	Light TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Light Truck	Unpaved	Light TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Line Truck	Paved	Line TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Line Truck	Unpaved	Line TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Bucket Truck	Paved	Bucket TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Bucket Truck	Unpaved	Bucket TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Concrete Truck	Paved	Concrete TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Concrete Truck	Unpaved	Concrete TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Heavy Duty Truck	Paved	Heavy Duty TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Heavy Duty Truck	Unpaved	leavy Duty TruckUnpave	7.5	17	2.14E+00	2.14E-01
Worker Commuting	Paved	Worker CommutingPaved	0.035	2.7	5.15E-04	0.00E+00
Worker Commuting	Unpaved	Vorker CommutingUnpave	7.5	2.7	9.37E-01	9.37E-02
Worker Shuttle	Paved	Worker ShuttlePaved	0.035	2.7	5.15E-04	0.00E+00
Worker Shuttle	Unpaved	Worker ShuttleUnpaved	7.5	2.7	9.37E-01	9.37E-02
Framing Truck	Paved	Framing TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Framing Truck	Unpaved	Framing TruckUnpaved	7.5	2.7	9.37E-01	9.37E-02

[a] Paved road silt loading from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for collector roads,
http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf
Unpaved road silt content from SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden

[b] Average paved on-road vehicle weight in Ventura County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)
Unpaved worker commuting weight on access road assumed to be same as paved road weight
Unpaved weight for other trucks is based on upper limit of 33,000 lbs (16.5 tons) for heavy-duty trucks (SCAQMD CEQA Handbook, (1993) Ta

[c] Equations:

$EF(paved) = k_p (sL/2)^{0.65} (W/3)^{1.5} - C$ — Ref: AP-42, Section 13.2.1, "Paved Rods," November 2006

$EF (unpaved) = k_u (s/12)^a (W/3)^b$ — Ref: AP-42, Section 13.2.2, "Unpaved Rods," November 2006

Constants:

k_p =	0.016	(Particle size multiplier for PM10)
	0.0024	(Particle size multiplier for PM2.5)
C =	0.00047	(Exhaust, brake wear and tire wear adjustme
	0.00036	(Exhaust, brake wear and tire wear adjustme
k_u =	1.5	(Particle size multiplier for PM)
	0.15	(Particle size multiplier for PM2.5)
a =	0.9	for PM10
	0.9	for PM2.5
b =	0.45	for PM10
	0.45	for PM2.5

Table 46
Fugitive Dust Emission Factors

Soil Dropping During Excavation

Emission Factor [lb/cu. yd] = 0.0011 x (mean wind speed [mi/hr] / 5)$^{1.3}$ / (moisture [%] / 2)$^{1.4}$ x (number drops per ton) x (density [ton/cu. yd])
Reference: AP-42, Equation (1), Section 13.2.4, November 2006

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	15	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G-1, moist soil
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

PM10 Emission Factor (Uncontrolled)	9.94E-04	lb/cu. yd
Reduction from Watering Twice/Day[b]	0%	
Controlled PM10 Emission Factor	9.94E-04	lb/cu. yd
Controlled PM2.5 Emission Factor[a]	2.07E-04	lb/cu. yd

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

[b] Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per cubic yard] x Volume soil handled [cubic yards per day]

Table 46
Fugitive Dust Emission Factors

Storage Pile Wind Erosion

Emission Factor [lb/day-acre] = 0.85 x (silt content [%] / 1.5) x (365 / 235) x (percentage of time unobstructed wind exceeds 12 mph / 15)
Reference: SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-E

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled)	44.0	lb/day-acre
Reduction from Watering Twice/Day	50%	
Controlled PM10 Emission Factor	22.0	lb/day-acre
Controlled PM2.5 Emission Factor[a]	4.6	lb/day-acre

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per acre-day] x Storage pile surface area [acres]

Table 46
Fugitive Dust Emission Factors

Bulldozing, Scraping and Grading

Emission Factor [lb/hr] = 0.75 x (silt content [%])$^{1.5}$ / (moisture)$^{1.4}$
Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden
Moisture	15	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G-1, moist soil

PM10 Emission Factor (Uncontrolled)	0.348	lb/hr
Reduction from Watering Twice/Day	0%	
Controlled PM10 Emission Factor	0.348	lb/hr
Controlled PM2.5 Emission Factor[a]	0.072	lb/hr

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

[b] Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing or grading time [hours/day]

Table 47
Localized Significance Threshold Analysis

LST Analysis for the Compressor Station Site
(2 acre site; Nearest Receptor at over 1,000 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	107.26	93.18	9.64	4.52
Peak Daily Operational Emissions	1.98	0.22	0.00	0.33
NOx and CO LST	***8933***	***271***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for the Substation Site
(2 acre site; Nearest Receptor at over 900 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	32.40	47.35	15.64	4.52
Peak Daily Operational Emissions	0.00	0.00	0.00	0.00
NOx and CO LST	***8933***	***271***	***139***	***80***
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

SCAQMD Localized Significance Threshold (LST) Values

	Allowable emissions (lb/day) as a function of receptor distance from Site Boundary														
Pollutant	**1 Acre**					**2 Acre**					**5 Acre**				
Receptor Distance (meters)	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**
CO	590	879	1294	2500	8174	877	1256	1787	3108	8933	1644	2095	2922	4608	11049
NOx	106	107	124	161	254	152	148	160	190	271	228	219	233	256	321
PM_{10} Construction	4	12	25	51	131	6	19	32	59	139	12	38	52	79	161
PM_{10} Operation	1	3	6	13	32	2	5	8	15	34	3	10	13	19	39
$PM_{2.5}$ Construction	3	4	7	18	74	4	5	9	20	80	6	8	13	26	95
$PM_{2.5}$ Operation	1	1	2	5	18	1	2	2	5	20	2	2	3	7	23

Table 48-A

Peak Daily Compressor Site Construction Emissions						
Scenario[1]	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
1	0.24	1.27	1.41	0.07	0.20	0.11
2	13.42	71.19	83.60	0.13	8.42	2.03
3	10.67	71.04	48.67	0.11	6.28	2.51
4	17.87	107.26	93.18	0.18	9.64	4.52
5	2.13	11.21	9.80	0.02	1.09	0.62
Peak Daily	**17.87**	**107.26**	**93.18**	**0.18**	**9.64**	**4.52**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Compressor Station Survey	0.09	0.17	0.18	0.07	0.12	0.08
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**0.24**	**1.27**	**1.41**	**0.07**	**0.20**	**0.11**

Scenario 2 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Compressor Station Site Clearing	5.69	30.69	32.08	0.05	3.07	0.99
Compressor Station Site Preparation	7.57	39.40	50.28	0.07	5.28	0.99
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**13.42**	**71.19**	**83.60**	**0.13**	**8.42**	**2.03**

Scenario 3 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Compressor Station Civil	10.51	69.93	47.43	0.11	6.20	2.47
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**10.67**	**71.04**	**48.67**	**0.11**	**6.28**	**2.51**

Scenario 4 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Compressor Station Mechanical	11.76	73.06	57.14	0.12	6.57	2.80
Compressor Station Electrical	5.95	33.10	34.80	0.06	2.99	1.68
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**17.87**	**107.26**	**93.18**	**0.18**	**9.64**	**4.52**

Scenario 5 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Compressor Station Paving	0.18	1.44	0.53	0.00	0.12	0.02
Compressor Station Fencing	0.27	1.88	0.59	0.00	0.15	0.04
Compressor Station Landscaping	1.54	6.78	7.45	0.01	0.75	0.52
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**2.13**	**11.21**	**9.80**	**0.02**	**1.09**	**0.62**

Table 48-B

Peak Daily Substation Site Construction Emissions						
Scenario[1]	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
1	0.31	1.29	1.42	0.15	0.31	0.19
2	7.25	25.14	47.35	0.06	15.64	4.52
3	4.25	17.77	16.13	0.02	1.77	1.22
4	5.84	32.40	26.33	0.05	2.86	1.64
5	5.84	32.40	26.33	0.05	2.86	1.64
Peak Daily	**7.25**	**32.40**	**47.35**	**0.15**	**15.64**	**4.52**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation Survey	0.15	0.18	0.19	0.15	0.23	0.15
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**0.31**	**1.29**	**1.42**	**0.15**	**0.31**	**0.19**

Scenario 2 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation Grading	7.09	24.03	46.11	0.06	15.56	4.48
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**7.25**	**25.14**	**47.35**	**0.06**	**15.64**	**4.52**

Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation Civil	3.28	13.13	12.29	0.02	1.39	0.99
Substation Fencing	0.82	3.54	2.60	0.00	0.30	0.19
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**4.25**	**17.77**	**16.13**	**0.02**	**1.77**	**1.22**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**5.84**	**32.40**	**26.33**	**0.05**	**2.86**	**1.64**

Scenario 5 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**5.84**	**32.40**	**26.33**	**0.05**	**2.86**	**1.64**

Appendix B.2 – Biological Resources

Special Status Plant Species Report

Draft

Special-status Plant Species Report

Aliso Canyon Turbine Replacement Project

Los Angeles County, California

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June 2009

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1.0 INTRODUCTION

A focused special-status plant survey was conducted to support the Aliso Canyon Turbine Replacement (ACTR) project proposed by the Southern California Gas Company (SCGC), a Sempra Energy utility company, for their Aliso Canyon Storage Field in Los Angeles County, California. This project would upgrade power lines to the Aliso Canyon Storage Field in Porter Ranch, California and includes an alignment which traverses adjacent property and concludes in the City of Santa Clarita. A portion of the alignment falls within the Santa Susana Mountains Significant Ecological Area, a designation specific to Los Angeles County. This document provides a floristic inventory of the study area and the potentially sensitive botanical resources both on the site and in the surrounding area in accordance with the Los Angeles County Guidelines for Significant Ecological Areas (2004). This report also presents incidental sightings of sensitive wildlife species detected during the surveys.

1.1 Project Description

The Aliso Canyon Storage Field is located in the City of Porter Ranch. The survey included the storage field as well as the electrical alignment in the City of Santa Clarita and Los Angeles County, California.

The proposed project would upgrade power lines and replace existing power poles to the Aliso Canyon Storage Field. The power lines traverse rights-of-way held by Southern California Edison on adjacent properties before connecting to the power poles on the Aliso Canyon Storage Field. Initially, the project considered two routes, the 16kV route, and the 66 kV route. Both routes were surveyed. Subsequent to the field work, SCGC determined that the 66kV route was preferred. Hence, this report only discusses information relevant to the 66kV route. However, the methods section discusses all relevant work performed during this survey.

2.0 Existing Conditions

A summary of the existing conditions for the general vicinity and the study area is presented in the Biological Resources Section of the Proponent's Environmental Assessment prepared for this project. Please refer to that document for descriptions of the existing vegetation communities and specific site characteristics.

3.0 METHODS

The following sections describe the study methods used during the special-status plant surveys.

3.1 Literature Review

For purposes of this report, a plant species is considered sensitive if it is: (1) listed or proposed for listing as threatened or endangered by state or federal agencies; (2) on List 1A (presumed extinct in California), List 1B (considered endangered throughout its range), or List 2 (considered endangered in California but more common elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2009); or (3) considered rare, endangered, or threatened by the State of California (California Department of Fish and Game (CDFG) 2009a) or other local conservation organizations or specialists. Noteworthy plant species are considered to be those that are classified as CNPS List 3 (more information about the plant's distribution and rarity needed) and List 4 (plants of limited distribution) (CNPS 2009).

Prior to conducting the field survey, sensitive plant species that would potentially be present on the site and surrounding areas were identified using the California Natural Diversity Data Base (CNDDB) (CDFG 2009b), and the Inventory of Rare and Endangered Plants on the CNPS website (CNPS 2009). A CNDDB database search was conducted, encompassing a 10-mile radius around the proposed study area and a nine-quadrangle search was conducted in the CNPS database around the U.S. Geological Survey quadrangle in which the proposed project site is located. This search included the Newhall, Whitaker Peak, Warm Springs Mountain, Mint Canyon, San Fernando, Green Valley, Val Verde, Santa Susana, and Oat Mountain quadrangles. A briefing was prepared that contained photos and information of all plant species that could potentially be found on the project site and was distributed to field biologists conducting the surveys. A list of special-status species potentially occurring on the project site and surrounding areas is presented in Appendix 1.

3.2 Botanical Surveys

Special-status plant surveys were conducted for ten days in conjunction with the vegetation community mapping effort. From April 14, 2009 to April 17, 2009, Ms. Julie Niceswanger and Mr. Rocky Brown surveyed the 16kV proposed project site and parts of the 66kV site within SCGC property. From April 20, 2009 to April 23, 2009, Dr. Frank Landis and Mr. Rocky Brown surveyed the remaining 66KV proposed alignment site on lands adjacent to the SCGC property. On June 8 and June 9, 2009, Dr. Landis and Mr. Brown surveyed additional towers on the 66 kV proposed alignment, additional areas within the SCGC property, and rechecked five detections of potential sensitive species to confirm identities.

The study area defined for this survey was limited to 25 meters (approximately 82 feet) on each side of the proposed alignment. Surveyors concentrated their effort around each power pole within the alignment as this area would require the most disturbance during project activities. The span between poles was scanned for appropriate habitat types to support sensitive plant species and surveyed when accessible. In several cases, the survey area included cliffs that were inaccessible and binoculars were used to make a visual assessment of the habitat. The surveys were conducted by walking meandering transects, recording observed plant species within the study area, and indicating special-status and non-native species. Locations of special-status species were recorded with sub-meter accuracy global positioning system units.

Surveys focused on natural areas however, the wildland-urban interface was surveyed if natural plant communities occurred within the 25 meter survey area. Five poles in urban Santa Clarita were scanned but not surveyed, as the entire 25 meter survey area around each pole was landscaped with ornamental non-native plants and there was a low likelihood for special-status plants to occur within these landscaped areas. An additional four poles positioned within the wildland-urban interface were surveyed due to adjacent natural habitat.

Plant species found within the study area, both sensitive and non-sensitive, were identified and recorded. When the identity of the species was not known in the field, either a sample was collected and pressed or a photograph and notes were taken to aid in the identification. Due to their sensitivity, special-status plants were photographed rather than collected.

Plants were identified to the species level from photographs and specimens and a floral inventory was compiled. Nomenclature follows Calflora (2009) and identification was conducted using the *Jepson Manual* (Hickman, 1993) supplemented by McAuley (1996), Lightner (2006), and Calflora (2009). Family names follow the current APG II system (2009) for flowering plants and Allen et al (2006) for ferns which have been updated since Hickman's publication of the *Jepson Manual* in 1993. Appendix 2 provides a list of all species encountered and includes references to the families found in the *Jepson Manual* (Hickman, 1993) where changes have occurred.

3.3 Incidental Wildlife Survey

During the field surveys, observations of potentially sensitive wildlife species were recorded as they occurred. If surveyors were unfamiliar with a species, pictures and other information were used to identify them in the office.

4.0 SURVEY RESULTS

4.1 Plant Species

In the 66kV portion of the proposed project site, 182 plant species were identified, including lycophytes, ferns, conifers, and flowering plants (Appendix 2). Approximately 82 percent of the species found were growing in natural plant communities, and the rest (16 percent) were growing in the urban-wildland interface where escaped ornamentals were present. Of the plants found in non-urban plant communities, approximately 25 percent were non-native.

Two sensitive plant species were identified during the survey: slender mariposa lily (*Calochortus clavatus* var. *gracilis*) and Plummer's mariposa lily (*Calochortus plummerae*). Both species are listed on CNPS List 1B.

Over 1,320 slender mariposa lilies were detected around seven towers on June 8 and 9, 2009. The species was initially detected in April prior to blooming, and by June 8, almost all plants had finished flowering. Nonetheless, enough plants were blooming at each site to make a definitive identification, based on pictures and a specimen collected.

Four Plummer's mariposa lilies were found in a single population, east of the current compressor site within the SCGC plant. They are growing in burned chaparral, on a slope roughly 8-10 meters from the roadway.

Although other potential sensitive species were thought to occur on the site, subsequent visits determined that all of these were common species. The list in Appendix 2 has been updated to reflect these identifications.

Table 1. Sensitive Plant Data

Species	Location	Number	Count/Estimate
Calochortus clavatus var. *gracilis*	Tower 12/5	233	Count
Calochortus clavatus var. *gracilis*	Tower 13/1	40	Count
Calochortus clavatus var. *gracilis*	Tower 13/2	>300	Estimate
Calochortus clavatus var. *gracilis*	Tower 13/3	>500	Estimate
Calochortus clavatus var. *gracilis*	Tower 14/1	186	Count
Calochortus clavatus var. *gracilis*	Tower 14/2	57	Count
Calochortus clavatus var. *gracilis*	Tower 14/6	5	Count
Calochortus plummerae	Condenser	4	Count

4.2 Incidental Wildlife Sightings

One coast horned lizard (*Phrynosoma coronatum*) was observed at Tower 14/1. The coast horned lizard is listed by CDFG as a species of special concern (CDFG 2009a). On Tower 14/2, one Cooper's hawk (*Accipiter cooperi*) was observed perching and taking flight over the proposed project area. This species is on the CDFG watch list (CDFG 2009a)

5.0 DISCUSSION AND FUTURE EFFORTS

Two sensitive plant species were observed during the 2009 surveys. Both *Calochortus clavatus* var. *gracilis* and *Calochortus plummerae* were identified at sites within the proposed project area. A second survey should be carried out in August, to look for any late-blooming special-status plants (as noted in Appendix 1) that were not detectable in the current efforts. Once this survey is complete, this report will be updated to incorporate the results of all surveys.

If impacted by the project development these two sensitive species would need to be mitigated. The four *Calochortus plummerae* found are on the outer edge of the proposed project site, on the far side of the road from the compressor plant. They can and should be avoided. The *Calochortus clavatus* var. *gracilis* plants may be be avoided, and the project should be designed to minimize overlap between their habitat and areas directly disturbed by the project.

Mitigation for impacts to *Calochortus clavatus* individuals may include the collection of dormant bulbs and seeds either for transplant to appropriate undisturbed portions of the project site, or for reintroduction to appropriate areas that were disturbed by the project. Additionally, *Calochortus clavatus* has the reputation of being a difficult plant to grow (Gerritsen and Parsons, 2007), so any planting should be assumed to have a low success rate. It is recommended that a Mitigation Plan be developed to provide adequate information about mitigation alternatives.

Depending on the physical characteristics of the soil, it might be possible to use equipment that does not damage the soil in which these plants grow (for instance, by using light weight machinery and using plates to spread the equipment weight across a large surface). There is no precedent for doing this to protect bulbs, and no references that demonstrate how much compaction a buried *Calochortus* bulb might survive have been found in the published literature.. Nonetheless, if it is possible to install the towers without damaging the dormant bulbs in the soil, it would minimize the need for mitigation efforts to the area impacted by the new towers. This might be the cost effective approach.

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APPENDIX 1. Potentially Occurring Special-status Plant Species for the Aliso Canyon Turbine Replacement Project

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Mt. Pinos onion (*Allium howellii* var. *clokeyi*)	CNPS List 1B	Great Basin scrub, Pinyon and juniper woodland	Apr-Jun	1300-1850 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, Mt. Pinos onion has a low likelihood of occurring on the proposed project site.
Braunton's milk-vetch (*Astragalus brauntonii*)	FE, CNPS List 1B	Chaparral, Coastal scrub, Valley and foothill grassland/recent burns or disturbed areas, usually sandstone with carbonate layers	Jan-Aug	4-640 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Braunton's milk-vetch has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.
Nevin's barberry (*Berberis nevinii*)	FE, CE, CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub/sandy or gravelly soils	Mar-Jun	274-825 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Nevin's barberry has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 7.5 miles east of the proposed project site.
round-leaved filaree (*California macrophylla*)	CNPS List 1B	Cismontane woodland, Valley and foothill grassland/clay soils	Mar-May	15-1200 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, round-leaved filaree has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 8.5 miles northwest of the proposed project site.
Slender mariposa lily (*Calochortus clavatus* var. *gracilis*)	CNPS List 1B	Chaparral, Coastal scrub, Valley and foothill grassland	Mar-Jun	360-1000	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Therefore slender mariposa has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 2 miles north of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Plummer's mariposa lily (*Calochortus plummerae*)	CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/granitic, rocky areas	May-Jul	100-1700	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found non-blooming *Calochortus* on-site. Therefore Plummer's mariposa has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.
southern tarplant (*Centromadia parryi* ssp. *australis*)	CNPS List 1B	Marshes and swamps(margins), Valley and foothill grassland (vernally mesic), Vernal pools	May-Nov	0-427 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, southern tarplant has a low likelihood of occurring on the proposed project site.
San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)	FC, CE, CNPS List 1B	Coastal scrub(sandy), Valley and foothill grassland	Apr-Jun	150-1220	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found spineflowers on-site. Therefore San Fernando Valley spineflower has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/sandy or rocky openings	Apr-Jul	270-1220	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found spineflowers on-site. Therefore Parry's spineflower has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 18 miles north of the proposed project site.
Santa Susana tarplant (*Deinandra minthornii*)	CR,CNPS List 1B	Chaparral, Coastal scrub/rocky areas	Jul-Nov	280-760 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. To date, it has not been found on the proposed project site. Nonetheless, Santa Susana tarplant has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
slender-horned spineflower (*Dodecahema leptoceras*)	FE, CE, CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan)/sandy soils	Apr-Jun	200-760 m	Based on the site description and personal knowledge of the surveyors, suitable habitat for this species does not exist within the proposed project site. Therefore, slender-horned spineflower has a low likelihood of occurring on the proposed project site.
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)	CNPS List 1B	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland/rocky, often clay or serpentinite soils	Apr-Jun	5-450 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Blochman's dudleya has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 9 miles southwest of the proposed project site.
Agoura Hills dudleya (*Dudleya cymosa* ssp. agourensis)	FT, CNPS List 1B	Chaparral, Cismontane woodland/rocky, volcanic soils	May-Jun	200-500 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Agoura Hills dudleya has a medium likelihood of occurring on the site. . The nearest documented occurrence of this species is approximately 13.5 miles southwest of the proposed project site.
many-stemmed dudleya (*Dudleya multicaulis*)	CNPS List 1B	Chaparral, Coastal scrub, Valley and foothill grassland/often clay soils	Apr-Jul	15-790 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Blochman's dudleya has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 13.5 miles southwest of the proposed project site.
San Gabriel bedstraw (*Galium grande*)	CNPS List 1B	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest	Jan-Jul	425-1500 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Therefore, San Gabriel bedstraw has a medium likelihood of occurring on the proposed project site. The nearest documented occurrence of this species is approximately 17 miles north of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	CNPS List 1A,	Marshes and swamps (coastal salt and freshwater)	Aug-Oct	10-1675 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, Los Angeles sunflower has a low likelihood of occurring on the proposed project site.
Ross' pitcher sage (*Lepechinia rossii*)	CNPS List 1B	Chaparral	May-Sep	305-790 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Ross' pitcher sage has a medium likelihood of occurring on the site. . The nearest documented occurrence of this species is approximately 17 miles northwest of the proposed project site.
Davidson's bush mallow (*Malacothamnus davidsonii*)	CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland	Mar-Jun	185-855	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found non-blooming *Malacothamnus* on-site. Therefore Davidson's bush-mallow has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 7.5 miles east of the proposed project site.
Moran's navarretia (*Navarretia fossalis*)	FT, CNPS List 1B	Chenopod scrub, Marshes and swamps(assorted shallow freshwater), Playas, Vernal pools	Apr-Jun	30-1300 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, Moran's navarretia has a low likelihood of occurring on the proposed project site.
Ojai navarretia (*Navarretia ojaiensis*)	CNPS List 1B	Chaparral(openings), Coastal scrub(openings), Valley and foothill grasslands	May-Jul	275-620 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Ojai navarretia has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 13 miles northwest of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Peninsular nolina (*Nolina cismontana*)	CNPS List 1B	Chaparral, Coastal scrub/sandstone or gabbro soils	May-Jul	140-1275 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, peninsular nolina has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 53 miles west of the proposed project site.
short-joint beavertail (*Opuntia basilaris* var. *brachyclada*)	CNPS List 1B	Chaparral, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodlands	Apr-Jun	425-1800 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, short-joint beavertail has a low likelihood of occurring on the proposed project site.
California orcutt grass (*Orcuttia californica*)	FE, CE, CNPS List 1B	Vernal pools	Apr-Aug	15-660 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, California orcutt grass has a low likelihood of occurring on the proposed project site.
white rabbit-tobacco (*Pseudognaphalium leucocephalum*)	CNPS List 2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/sandy, gravelly soils	(Jul) Aug-Nov (Dec)	0-2100 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. To date, it has not been found on the proposed project site. Nonetheless, Santa Susana tarplant has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 10 miles west of the proposed project site.
chaparral ragwort (*Senecio aphanactis*)	CNPS List 2	Chaparral, Cismontane woodland, Coastal scrub/sometimes alkaline soils	Jan-Apr	15-800 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, chaparral ragwort has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 8.5 miles northwest of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Greata's aster (*Symphyotrichum greatae*)	CNPS List 1B	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland/mesic soils	Jun-Oct	300-2010 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. To date, it has not been found on the proposed project site. Nonetheless, Greata's aster has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 7.5 miles east of the proposed project site.

Status Codes:

FE = Federally Endangered; **FT** = Federally Threatened; **CE** = State of California Endangered; **CT** = State of California Threatened;
CR = State of California Rare, **CNPS 1A** = Presumed Extinct in California; **CNPS 1B** = Rare, Threatened, or Endangered in California and Elsewhere;
CNPS 2 = Rare, Threatened, or Endangered in California but Common Elsewhere; **CNPS 4** = Plants of Limited Distribution

Appendix 2. Plant Species Detected During the Survey

Lycopods

Selaginellaceae (Spike moss family)

spike moss (*Selaginella bigelovii*)

Ferns

Lomariopsidaceae (Climbing holly ferns)

boston fern (*Nephrolepis exaltata*)*p

Pteridaceae (Brake family)

birdfoot cliffbrake (*Pellaea mucronata*)
goldback fern (*Pentagramma triangularis*)

Conifers (Pines and Cypresses)

Cupressaceae (Cypress family)

italian cypress (*Cupressus sempervirens*)*p
juniper (*Juniperus* sp.)*p
giant sequoia (*Sequoiadendron giganteum*)p

Pinaceae (Pine Family)

Non-native pine (*Pinus* sp)*p

Angiosperms: Monocots

Agavaceae (Agave Family, part of Liliaceae in Jepson)

agave (*Agave* sp.)*p
chaparral yucca (*Hesperoyucca whipplei*)

Arecaceae (Palm Family)

Mexican fan palm (*Washingtonia robusta*)*p

Asphodelaceae (Asphodel family)

aloe (*Aloe* sp.)*p
red hot poker (*Kniphofia uvaria*)*p

Cyperaceae (sedge family)

umbrella plant (*Cyperus involucratus*)*

Hyacinthaceae (Hyacinth family, part of Liliaceae in Jepson)

soap plant (*Chlorogalum pomeridianum*)

Iridaceae (Iris family)

iris (*Iris* sp.)*p
blue-eyed grass (*Sisyrinchium bellum*)

Liliaceae (Lily family)

Slender mariposa lily (*Calochortus clavatus* var. *gracilis*)
Plummer's mariposa lily (*Calochortus plummerae*)

Poaceae (Grass family)

giant ricegrass (*Achnatherum coronatum*)
wild oats (*Avena fatua*)*
ripgut brome (*Bromus diandrus*)*
soft brome (*Bromus hordeaceus*)*
red brome (*Bromus madritensis* ssp. *rubens*)*
Bermuda grass (*Cynodon dactylon*)*

(Appendix 1, continued)

quackgrass (*Elytrigia* sp.)*
foxtail barley (*Hordeum murinum*)*
sprangletop (*Lamarckia aurea*)*
giant wild-rye (*Leymus condensatus*)
italian ryegrass (*Lolium multiflorum*)*
chaparral melic (*Melica imperfecta*)
foothill needlegrass (*Nasella lepida*)
purple needlegrass (*Nasella pulchra*)
fountaingrass (*Pennisetum setaceum*)*p
smilo grass (*Piptatherum miliaceum*)
Mediterranean grass (*Schismus arabicus*)*
rattail fescue (*Vulpia myuros*)*

Themidaceae (Brodiaea family, part of Liliaceae in Jepson)
blue dicks (*Dichelostemma capitatum*)

Angiosperms: Eudicots

Adoxaceae (Moschatel family, part of Caprifoliaceae in Jepson)
blue elderberry (*Sambucus nigra* ssp. *caerulea*)

Aizoaceae (Fig-marigold family)
baby sun rose (*Aptenia cordifolia*)*p

Altingiaceae (Liquidambar family)
sweetgum (*Liquidambar styraciflua*)*p

Amaranthaceae (Amaranth family, includes Chenopodiaceae from Jepson)
lamb's quarters (*Chenopodium album*)*

Anacardiaceae (Cashew family)
laurel sumac (*Malosma laurina*)
sugarbush (*Rhus ovata*)
poison oak (*Toxicodendron diversilobum*)

Apiaceae (Celery family)
rattlesnake weed (*Daucus pusillus*)
snake root (*Sanicula arguta*)

Apocynaceae (Dogbane Family)
Narrow leaved milkweed (*Asclepias fascicularis*)
oleander (*Nerium oleander*)*p

Asteraceae (Aster family)
perezia (*Acourtia microcephala*)
western ragweed (*Ambrosia psilostachya*)
California sagebrush (*Artemisia californica*)
mugwort (*Artemisia douglasiana*)
coyotebush (*Baccharis pilularis*)
mulefat (*Baccharis salicifolia*)
California brickellbush (*Brickellia californica*)
italian thistle (*Carduus pycnocephalus*)*
tocalote (*Centaurea militensis*)*
yellow star thistle (*Centaurea solstitialis*)*
yellow pincushion (*Chaenactis prob. Artemisifolia*)
California thistle (*Cirsium occidentale*)

(Appendix 1, continued)

horseweed (*Conyza canadensis*)
common tarplant (*Deinandra fasciculata*)
bush sunflower (*Encelia californica*)
golden yarrow (*Eriophyllum confertiflorum*)
California filago (*Filago californica*)
common gumplant (*Grindelia camporum*)
sawtooth goldenbush (*Hazardia squarrosa*)
common sunflower (*Helianthus annuus*)p
telegraph weed (*Heterotheca grandiflora*)
prickly lettuce (*Lactuca serriola*)*
coast goldfields (*Lasthenia california*)
woolly aster (*Lessingia filaginifolia*)
Slender tarweed (*Madia gracilis*)
cliff aster (*Malacothrix saxatilis*)
two-tone everlasting (*Pseudognaphalium bicolor*)
fragrant everlasting (*Pseudognaphalium canescens*)
California chicory (*Rafinesquia californica*)
shrubby butterweed (*Senecio flaccidus* var. *douglasii*)
milk thistle (*Silybum marianum*)
sow thistle (*Sonchus oleraceus*)
silver puffs (*Uropappus lindleyi*)

Bignoniaceae (Trumpet creeper family)

trumpet creeper (*Campsis radicans*)*p

Boraginaceae (Borage family, includes the Hydrophyllaceae from Jepson)

rancher's fireweed (*Amsinckia menziesii* var. *intermedia*)
white forget-me-not (*Cryptantha clevelandii*)
popcorn flower (*Cryptantha intermedia*)
whispering bells (*Emmenanthe penduliflora*)
yerba santa (*Eriodictyon crassifolium*)
eucrypta (*Eucrypta chrysanthemifolia*)
caterpillar phacelia (*Phacelia cicutaria* var. *hispida*)
branching phacelia (*Phacelia ramosissima* var. *latifolia*)
fern-leaf phacelia (*Phacelia tanacetifolia*)
fiesta flower (*Pholistoma auritum*)
white fiesta flower (*Pholistoma racemosum*)

Brassicaceae (Mustard family)

black mustard (*Brassica nigra*)*
western wallflower (*Erysimum capitatum*)
mediterranean mustard (*Hirschfeldia incana*)*
sweet alyssum (*Lobularia maritima*)*p
london rocket (*Sisymbrium irio*)*

Cactaceae (Cactus family)

barrel cactus (*Ferocactus* sp.)p
indian fig prickly pear (*Opuntia ficus-indica*)*
column cactus (*Trichocereus* sp.)*p

Caryophyllaceae (Pink family)

windmill pink (*Silene gallica*)*
catchfly (*Silene* prob. *multinervia*)
chickweed (*Stellaria media*)

(Appendix 1, continued)

Chenopodiaceae (Goosefoot family)

- Lambsquarters (*Chenopodium album*)*

Convolvulaceae (Morning glory family, includes Cuscutaceae from Jepson)

- morning-glory (*Calystegia macrostegia*)
- bindweed (*Convolvulus arvensis*)*
- dodder (*Cuscuta californica*)

Crassulaceae (Stonecrop family)

- jade plant (*Crassula argentea*)*p
- lance-leaf live-forever (*Dudleya* prob. *lanceolata*)

Cucurbitaceae (Cucumber family)

- calabazilla (*Cucurbita foetidissima*)
- wild cucumber (*Marah macrocarpus*)

Ericaceae (Heather family)

- manzanita (*Arctostaphylos* sp.)

Euphorbiaceae (Spurge family)

- rattlesnake mat (*Chamaesyce albomarginata*)
- petty spurge (*Euphorbia peplus*)*

Fabaceae (Bean family)

- common dwarf locoweed (*Astragalus didymocarpus*)
- Santa Barbara locoweed (*Astragalus trichopodus* var. *phoxus*)
- spanish clover (*Lotus purshianus*)
- coastal lotus (*Lotus salsuginosus*)
- deerweed (*Lotus scoparius*)
- dove lupine (*Lupinus bicolor*)
- bajada lupine (*Lupinus concinnus*)
- summer lupine (*Lupinus formosus*)
- stinging lupine (*Lupinus hirsutissimus*)
- sky lupine (*Lupinus nanus*)
- arroyo lupine (*Lupinus succulentus*)
- bur clover (*Medicago polymorpha*)*
- sour clover (*Melilotus indica*)*
- albizia (*Paraserianthes lophantha*)*
- rose clover (*Trifolium hirtum*)*
- wildcat clover (*Trifolium wildenovii*)
- winter vetch (*Vicia villosa* ssp. *villosa*)*

Fagaceae (Beech family)

- coast live oak (*Quercus agrifolia*)
- valley oak (*Quercus lobata*)

Geraniaceae (Geranium family)

- filaree (*Erodium cicutarium*)

Grossulariaceae (Gooseberry family)

- chaparral currant (*Ribes malvaceum*)
- oak gooseberry (*Ribes quercetorum*)

Juglandaceae (Walnut family)

- California black walnut (*Juglans californica*)

(Appendix 1, continued)

Lamiaceae (Mint family)

horehound (*Marrubium vulgare*)*
white sage (*Salvia apiana*)
purple sage (*Salvia leucophylla*)
black sage (*Salvia mellifera*)

Malvaceae (Mallow family)

chaparral bush mallow (*Malacothamnus fasciculatus*)
cheeseweed (*Malva parviflora*)*

Nyctaginaceae (Four o'clock family)

bougainvillea (*Bougainvillea* sp.)*p
wishbone bush (*Mirabilis californica*)

Oleaceae (Olive family)

flowering ash (*Fraxinus dipetala*)
shamel ash (*Fraxinus uhdei*)*p
jasmine (*Jasminum polyanthum*)*p
olive (*Olea europaea*)*p

Onagraceae (Evening primrose family)

sun cups (*Camissonia californica*)
miniature suncup (*Camissonia micrantha*)
eleant clarkia (*Clarkia unguiculata*)
California fuchsia (*Epilobium canum*)

Orobanchaceae (Broomrape family, part of Scrophulariaceae in Jepson)

indian paintbrush (*Castilleja affinis*)
California broomrape (*Orobanche californica* ssp. *grandis*)

Paeoniaceae (Peony family)

California peony (*Paeonia californica*)

Papaveraceae (Poppy family)

collarless poppy (*Eschscholzia caespitosa*)
California poppy (*Eschscholzia californica*)

Phrymaceae (Lopseed family, includes part of Jepson's Scrophulariaceae)

bush monkeyflower (*Mimulus aurantiacus*)
scarlet monkeyflower (*Mimulus cardinalis*)
seep monkeyflower (*Mimulus guttatus*)

Plantaginaceae (Plantago family, includes part of Jepson's Scrophulariaceae)

white snapdragon (*Antirrhinum coulterianum*)
heart-leaf penstemon (*Keckiella cordifolia*)

Platanaceae (Sycamore family)

Western sycamore (*Platanus racemosa*)

Polemoniaceae (Phlox family)

globe gilia (*Gilia capitata* ssp. *abrotanifolia*)
California prickly phlox (*Leptodactylon californicum*)

Polygonaceae (Smartweed family)

Turkish rugging (*Chorizanthe staticoides*)

longstem buckwheat (*Eriogonum elongatum*)
California buckwheat (*Eriogonum fasciculatum*)
pterostegia (*Pterostegia drymarioides*)

Portulaceae (Purslane family)
scarlet pimpernel (*Anagallis arvensis*)*
red maids (*Calandrinia ciliata*)
miner's lettuce (*Claytonia perfoliata*)

Ranunculaceae (Buttercup family)
chaparral clematis (*Clematis lasiantha*)

Rhamnaceae (Buckthorn family)
hoary leaved ceanothus (*Ceanothus crassifolius*)
hairy ceanothus (*Ceanothus oliganthus*)
holly-leaf redberry (*Rhamnus ilicifolia*)

Rosaceae (Rose family)
chamise (*Adenostoma fasciculatum*)
curl-leaf mountain mahogany (*Cercocarpus ledifolius* var. *intercedens*)
birch-leaved mountain mahogany (*Cercocarpus montanus* var. *glaber*)
toyon (*Heteromeles arbutifolia*)
rose (*Rosa* sp.)*p
pacific blackberry (*Rubus ursinus*)*p

Rubiaceae (Coffee family)
narrow-leafed bedstraw (*Galium angustifolium*)
cleavers (*Galium aparine*)*

Salicaceae (Willow family)
fremont cottonwood (*Populus fremontii*)
red willow (*Salix laevigata*)
arroyo willow (*Salix lasiolepis*)

Simaroubaceae (Quassia family)
tree of heaven (*Ailanthus altissima*)*,p

Solanaceae (Nightshade family)
jimson weed (*Datura wrightii*)
tree tobacco (*Nicotiana glauca*)
white nightshade (*Solanum douglasii*)
purple nightshade (*Solanum xantii*)

Ulmaceae (Elm family)
chinese elm (*Ulmus parvifolia*)*p
siberian elm (*Ulmus pumila*)*p

Urticaceae (Nettle family)
western nettle (*Hesperocnide tenella*)
stinging nettle (*Urtica dioica* ssp. *holosericea*)

Verbenaceae (Vervain family)
robust vervain (*Verbena lasiostachys*)

(Appendix 1, continued)

Violaceae (Violet family)

California golden violet (*Viola pedunculata*)

Legend:

- * = non-native
- p = planted
- *p = non-native, planted
- *,p = non-native, both planted and growing in wild (*Ailanthus*)\

(Appendix 1, continued)

Lamiaceae (Mint family)
- horehound (*Marrubium vulgare*)*
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- cheeseweed (*Malva parviflora*)*

Nyctaginaceae (Four o'clock family)
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- wishbone bush (*Mirabilis californica*)

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Legend:

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p = planted
*p = non-native, planted
*,p = non-native, both planted and growing in wild (*Ailanthus*)\

Appendix B.3 – Transportation and Traffic

Traffic Study

URBAN CROSSROADS

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ALISO CANYON STORAGE FIELD TURBINE REPLACEMENT PROPONENT'S ENVIRONMENTAL ASSESSMENT (PEA) TRAFFIC IMPACT STUDY CITY OF SANTA CLARITA, CALIFORNIA

June 23, 2009

JN:06677-07
SS:JCS:jcs

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Aliso Canyon Turbine Replacement Project
TRAFFIC IMPACT STUDY
CITY OF SANTA CLARITA, CALIFORNIA

1.0 INTRODUCTION

Aliso Canyon is Southern California Gas Company's (SCG) largest underground natural gas storage field and one of the largest in the U.S. The field has 80 Bcf of working storage inventory, 1875 mmcfd of withdrawal capacity, and injection capacity that varies depending on field pressure from 600 mmscfd to 300 mmscfd. Approximately 45% of SCG's total firm injection capacity is provided by Aliso Canyon. The majority of the injection capacity at Aliso Canyon is provided by three jet engine driven centrifugal compressors providing 12,000 nominal horsepower each. These units were installed in the 1970's and have poor engine efficiency due to their use of older technology for the power turbine and compressor design. The complete turbine control system was upgraded to an Allen Bradley PLC based system in 1998. As storage services are a critical part of SCG's hourly, daily, and seasonal supply/demand balance equation, it is imperative that Aliso Canyon Storage Field remains highly reliable. This project consists of an upgraded replacement and expansion of the existing compression equipment.

A. Project Description

The purpose of this traffic study is to evaluate the traffic impacts associate with the proposed Aliso Canyon Turbine Replacement Project. However, since the project itself will not generate a significant amount of trips, the term "Project" in this analysis refers to the conditions associated with the activities due to construction. Specifically these include:

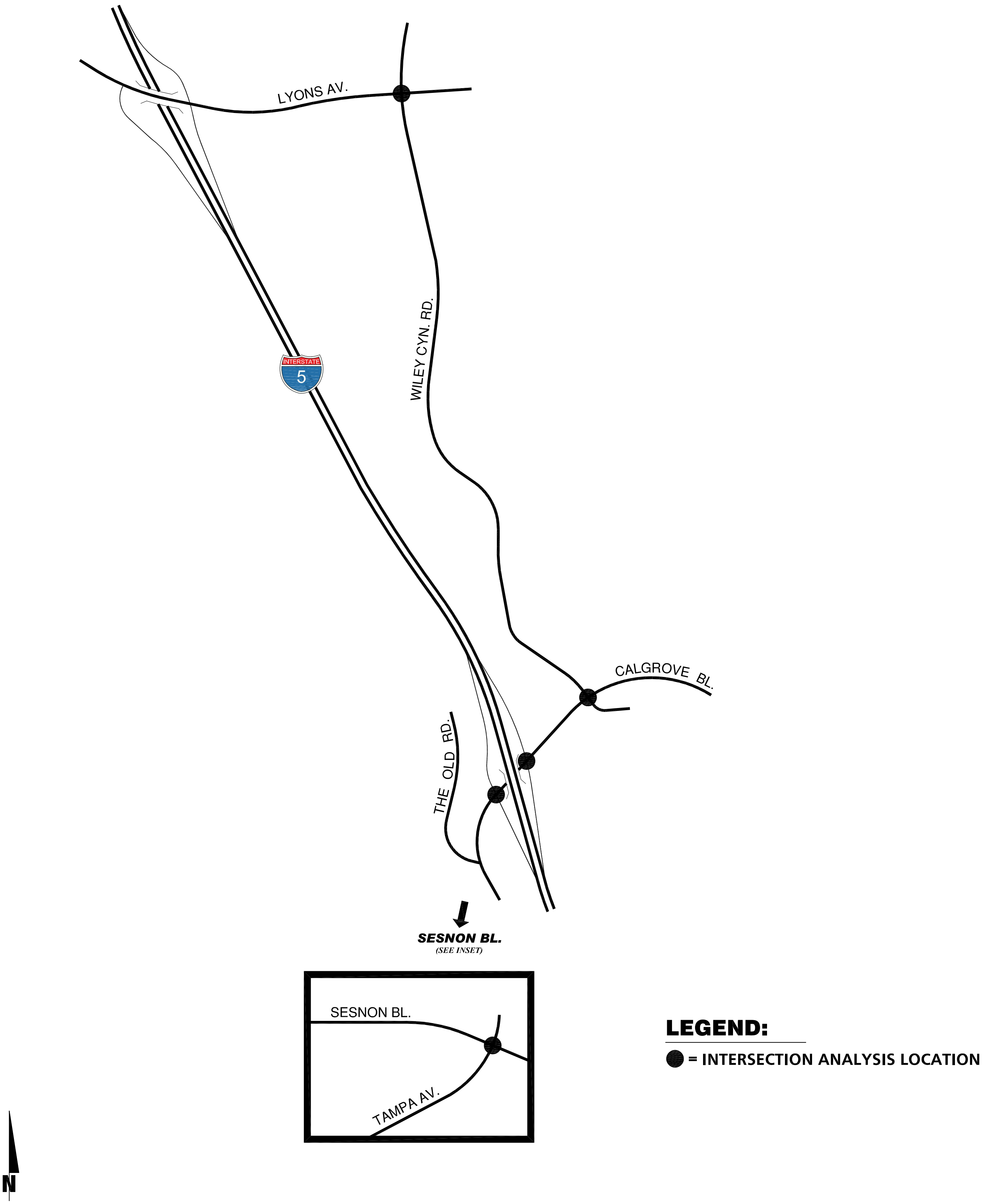
1. A potential southbound closure on Wiley Canyon Road, south of Lyons Avenue.

2. Provision of a shuttle service to accommodate 150 construction workers to the site.

Exhibit 1-A illustrates the traffic analysis study area.

EXHIBIT 1-A

LOCATION MAP



2.0 ANALYSIS METHODOLOGY

A. Scenarios

In accordance with the City of Santa Clarita's Traffic Impact Report Guidelines (1997), this study has analyzed the following scenarios:

1. Existing Traffic Conditions

   The existing conditions refer to the conditions which take into account the existing traffic counts, taken in April and May 2009, and existing lane configurations at study area intersections and roadway segments.

2. Existing Plus Ambient Plus Project Traffic Conditions

   Existing plus project traffic conditions includes the project traffic and ambient growth, which is added to the existing volumes. Existing geometry and intersection controls are analyzed first, then with mitigation, where required.

B. Level of Service Criteria

Level of Service (LOS) is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. The level of service criteria utilized in this report is consistent with the standards outlined in the City of Santa Clarita's Traffic impact Report Guidelines. For all signalized study area intersections, Intersection Capacity Utilization (ICU) methodology is utilized to assess the operation of a signalized intersection. To calculate ICU, the volume of traffic using the intersection is compared with the capacity of the intersection. ICU is usually expressed as a percent, which represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. For unsignalized intersections, the HCM methodology was utilized to calculate the level of service. The HCM method calculates the level of service based on intersection delay.

C. ICU Calculation Method for Signalized Intersections:

The study area signalized intersections have been evaluated based on the ICU methodology with the following assumptions.

1. Saturation Flow Rate

   Saturation flow value of 1,750 vehicles per lane per hour for intersections for through and turning lanes.

2. Level of Service Ranges

   The following thresholds are used in assigning a letter value to the resulting LOS:

LOS	CRITICAL VOLUME TO CAPACITY RATIO	DESCRIPTION
A	0.00 - 0.60	Excellent - Vehicl delays less than one cycle length and no approach phase is fully utilized
B	0.61 - 0.70	Very Good - An occassional approach phase is fully utilized; drivers being to feel somewhat restricted within groups of vehicles
C	0.71 - 0.80	Good - Occassionally drivers may be delayed through more than one signal cycle length and back-ups may develop behind turning vehicles
D	0.81 - 0.90	Fair - Delays may be substantial during portions of the peak hours, but adequate gaps may occur to prevent excessive backups
E	0.91 - 1.00	Poor - Represents saturation of intersection. Motorists experience delays of several cycle lengths
F	> 1.00	Failure - Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles through the intersection. Tremendous delays with increasing queue lengths

Source: City of Santa Clarita Circulation Element

3. Peak-Periods

Weekday peak-hour analysis periods are defined as follows:

7:00 to 9:00 AM
4:00 to 6:00 PM

4. Peak-Hour

The highest one-hour period in both the AM and PM peak periods, as determined by four consecutive 15-minute count periods are used in the ICU calculations. Both AM and PM peak hours are studied.

5. Peak-Hour Data Consistency

Variations in peak-hour volumes can affect LOS calculations because they vary from day-to-day. To minimize these variations, no counts are taken on Mondays, Fridays, holidays or weekends.

6. Right Turn Movements

If the distance from the edge of the outside through lane is at least 19 feet and parking is prohibited during the peak period, right turning vehicles may be assumed to utilize this "unofficial" right turn lane. Otherwise, all right turn traffic is assigned to the through lane. If a right turn lane exists, right turn activity is checked for conflicts with other critical movements. It is assumed that right turn movements are accommodated during non-conflicting left turn phases (e.g., northbound right turns during westbound left turn phase), as well as non-conflicting through flows (e.g., northbound right turn movements and north/south through flows). Right turn movements become critical when conflicting movements (e.g., northbound right turns, southbound left turns, and eastbound through flows) represent a sum of V/C ratios which are greater than the normal through/left turn critical movements.

If a free right turn lane exists (right turns do not have to stop for the signal), a flow rate of 1,750 vehicles per hour per lane is assumed. The V/C ratio of the right turn lane is reported but not included in the sum of the critical V/C ratios.

D. HCM Methodology at Unsignalized Intersections

For unsignalized intersections, the 2000 Highway Capacity Manual (HCM) (Transportation Research Board Special Report 209) is utilized to calculate the level of service. The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are determined using the HCM methodology.

The study area intersections with stop control on the minor street have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area locations, the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on total delay per vehicle for the worst minor street movements.

The levels of service are defined for the HCM methodology:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)
	UNSIGNALIZED
A	0 to 10.00
B	10.01 to 15.00
C	15.01 to 25.00
D	25.01 to 35.00
E	35.01 to 50.00
F	50.01 and up

E. Level of Service Criteria at Study Area Road Segments

Level of service at the study area road segments is determined utilizing the City of Santa Clarita's volume to capacity at urban arterial highways. Table 2-1 shows the average daily traffic volume (ADT) thresholds, roadway capacities and levels of service for each roadway classification type.

TABLE 2-1

CITY OF SANTA CLARITA
LEVELS OF SERVICE (LOS), VOLUME TO CAPACITY (V/C) RATIOS &
SERVICE VOLUMES FOR URBAN ARTERIAL HIGHWAYS

LEVEL OF SERVICE	V/C RATIO	DESCRIPTION	AVERAGE DAILY TRAFFIC SERVICE VOLUMES				
			8-LANE DIVIDED	6-LANE DIVIDED	4-LANE DIVIDED	4-LANE UNDIVIDED	2-LANE UNDIVIDED
A	≤0.36	Free Flow - low volumes; little or no delay throughout the day or during peak hours	48,000	36,000	24000 (28,000)	16,000	5,000
B	≤0.54	Stable Flow - relatively low volumes; acceptable delays experienced throughout the day; some peak hour congestion	54,000	40,400	27000 (32,000)	18,000	7,500
C	≤0.71	Stable Flow - relatively low volumes; acceptable delays experienced throughout the day; some peak hour congestion.	60,000	45,000	30000 (36,000)	20,000	10,000
D	≤0.87	Approaching Unstable Flow - poor, yet tolerable delays experienced throughout the day. Peak hours may experience significant congestion and delays.	66,000	49,500	33000 (40,000)	22,000	12,500
E	≤1.00	Unstable Flow - heavy congestion and delays experienced throughout the day and during the peak hours. Volumes at or near capacity.	72,000	54,000	36000 (44,000)	24,000	15,000
F	>1.00+	Forced flow- both speeds and flow of traffic can drop to zero. Stoppages may occur for long periods with vehicles backing up from one intersection through another. (Referred to as "gridlock" condition).	This condition represents system breakdown and does not have a specific relationship to service volumes				

Augmented intersection: Will add 15% to the above roadway capacity.
Note: (XX,XXX) = Capacity for Limited Access on 4-Lane Divided Arterial

Source: *City of Santa Clarita General Plan Circulation Element, 1997*

The City of Santa Clarita Traffic Impact Report Guidelines summarizes the generally accepted level of service (LOS) criteria. The Guidelines have established a LOS “C” as acceptable level of operation for residential and industrial areas and LOS “D” for commercial, freeway ramps and CBD’s. It is assumed that a final V/C between 0.80-0.89 with an increase equal to or greater than 0.02 with project (when compare to without project conditions) is considered a project impact. Similarly, a final V/C between 0.90 or more with an increase equal to or greater than 0.01 with project (when compare to without project conditions) is considered a project impact.

For road segments, the impact criteria stipulates an increase in 3% or more in any peak hour volume due to project generated traffic.

The traffic analysis tool, Traffix R4 (2008) has been utilized to analyze the AM and PM peak hour conditions for the study area intersections. It should be noted that Traffix is a traffic analysis tools which utilizes the methodologies outlined in the 2000 Highway Capacity Manual (HCM).

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3.0 EXISTING CONDITIONS ANALYSIS

A. Study Area Intersections

The study area consists of the following intersections, as previously shown on Exhibit 1-A:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Lyons Avenue (EW)
- Calgrove Boulevard (EW)

Tampa Avenue (NS) at:

- Sesnon Avenue (EW)

In addition to the above intersections, the following road segments have been analyzed:

Lyons Avenue:

- Between I-5 NB Ramps and Wiley Canyon Road

The Old Road:

- West of I-5 SB Ramps

Calgrove Boulevard:

- Between I-5 NB Ramps and Wiley Canyon Road

Wiley Canyon Road:

- South of Lyons Avenue

Exhibit 3-A identifies the existing roadway conditions for study area roadways, including the number of through traffic lanes for existing roadways and the existing intersection controls.

B. Existing Street System

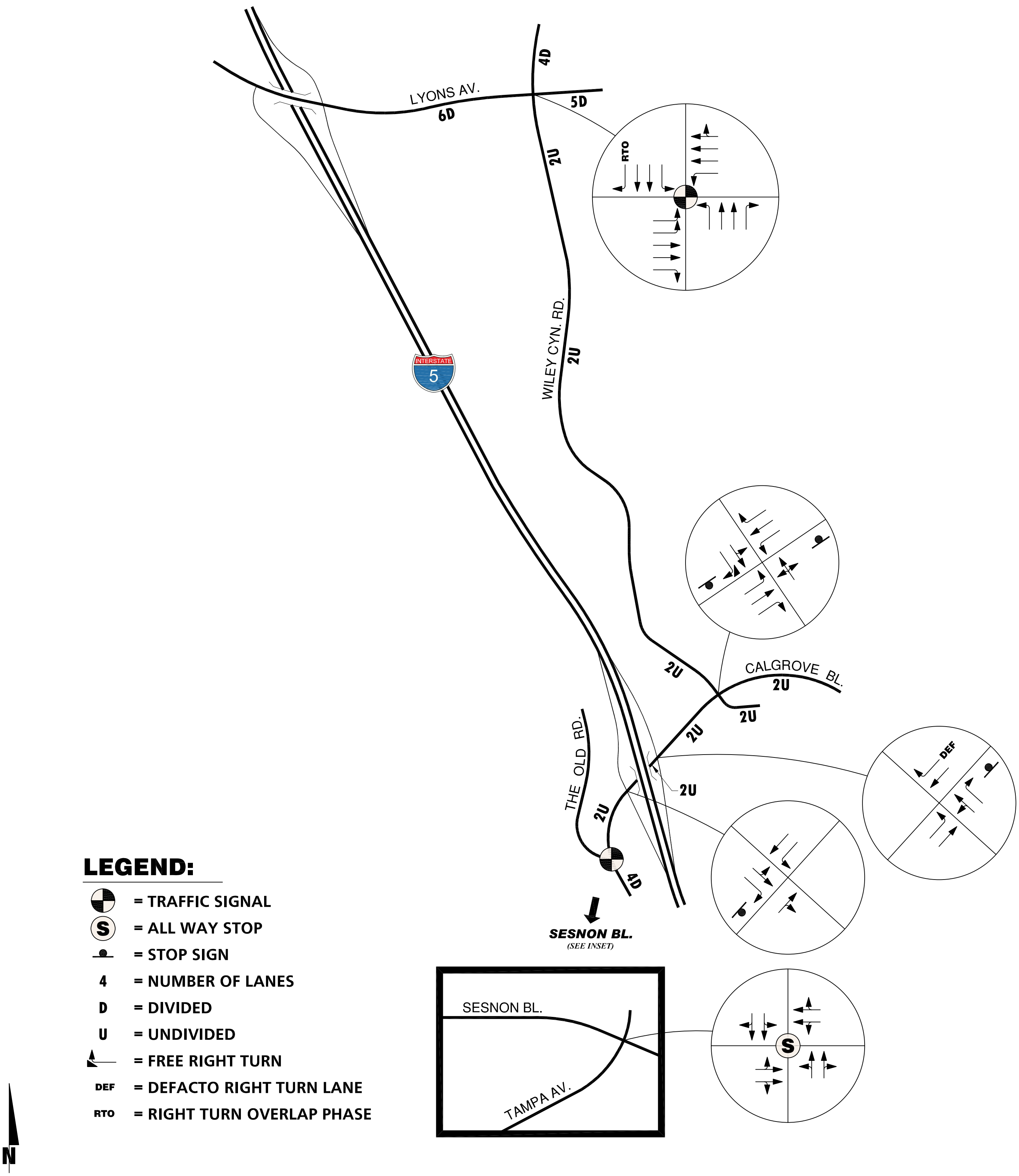
The currently adopted City of Santa Clarita General Plan Circulation Element is shown on Exhibit 3-B. The City of Santa Clarita General Plan roadway cross-sections are illustrated on Exhibit 3-C. The following is a description of the existing street system listed in the study area:

The Old Road is classified as a Major Arterial Highway in the currently adopted City of Santa Clarita General Plan Circulation Element. The Old Road provides north-south travel parallel to the Interstate 5 freeway. Under the General Plan Circulation Element, a Major Highway is designated to have at least six-lanes, divided, with no-on-street parking. It is currently constructed as a four-lane divided roadway south of Calgrove Boulevard with a posted speed limit of 55 mph.

Wiley Canyon Road is located east of Intestate 5 and provides parallel north-south travel parallel to the Interstate 5. Wiley Canyon Road is classified as a Major Arterial Highway in the currently adopted City of Santa Clarita General Plan Circulation Element north of Lyons Avenue. South of Lyons Avenue to Calgrove Boulevard, Wiley Canyon Road is classified as a Secondary Highway. Under the General Plan Circulation Element, a Major Highway is designated to have at least six-lanes, divided, with no-on-street parking. North of Lyons Avenue, Wiley Canyon Road is currently constructed as a four-lane divided roadway with parallel northbound and southbound bike lines. A Secondary Highway is designated as a four-lane divided roadway with no on-street parking. South of Lyons Avenue to Calgrove Boulevard, Wiley Canyon Road is currently constructed as a two-lane undivided roadway with intermittent on-street parking. Speed limits along Wiley Canyon range from 25 mph to 35 mph from Lyons Avenue to Calgrove Boulevard to the south.

Lyons Avenue provides east-west travel and classified as a Major Arterial Highway in the currently adopted City of Santa Clarita General Plan Circulation Element from The Old Road to Sierra Highway. Under the General Plan Circulation Element, a Major Highway is designated to have at least six-lanes, divided, with no-on-street parking. Within the study area, Lyons Avenue is currently constructed as a five to six-lane divided roadway with a posted speed limit of 40 mph. Bike lanes are provided along Lyons Avenue east of Wiley Canyon Road.

EXHIBIT 3-A
EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- S = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- = FREE RIGHT TURN
- DEF = DEFACTO RIGHT TURN LANE
- RTO = RIGHT TURN OVERLAP PHASE

EXHIBIT 3-B

CITY OF SANTA CLARITA GENERAL PLAN CIRCULATION ELEMENT

LEGEND:

EXPRESSWAY
Right of way width variable - 180 feet maximum
- Existing
- Proposed

FREEWAY
Right of way width variable
- Existing
- Proposed

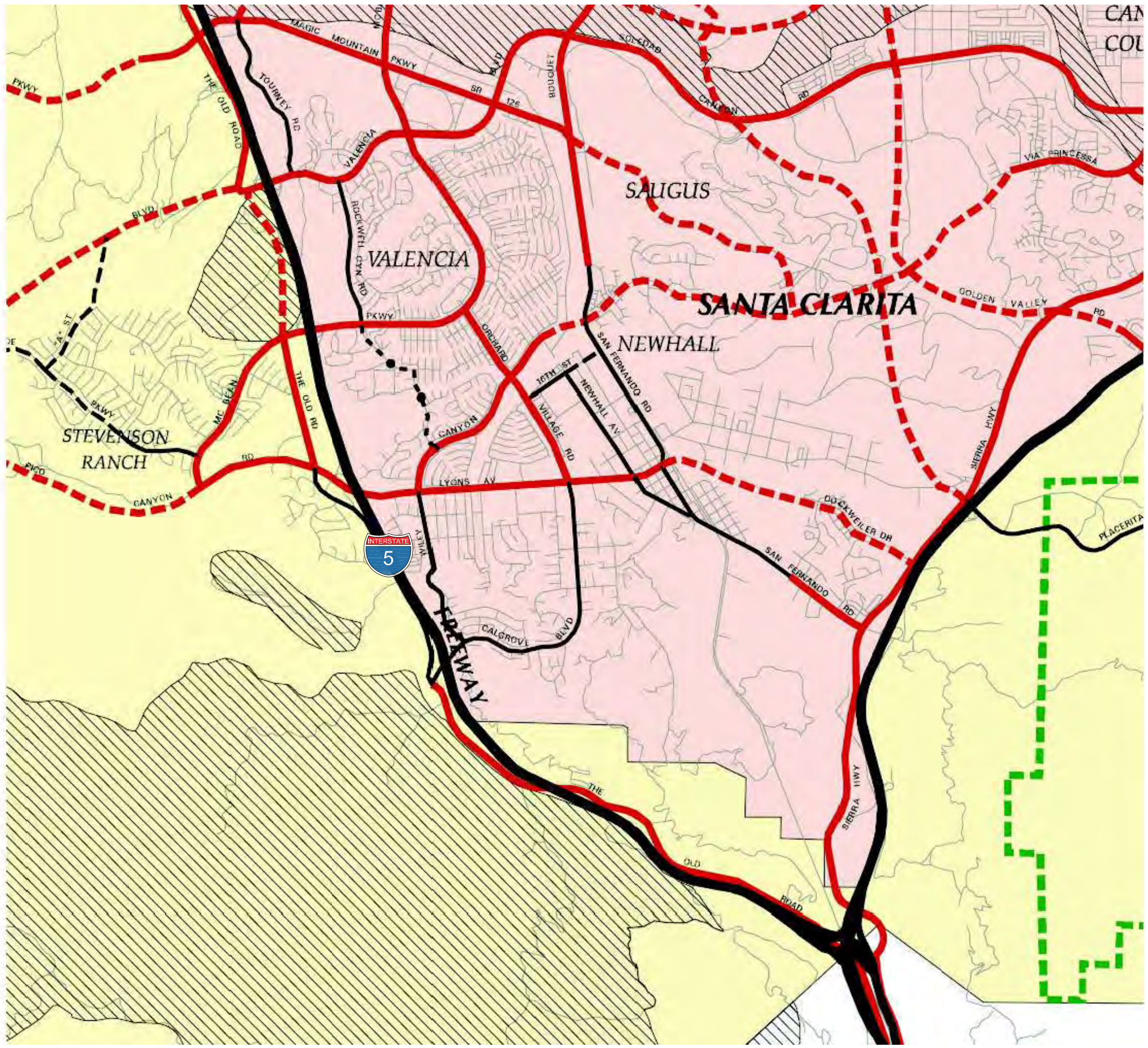
MAJOR HIGHWAY
100 feet standard right of way width
- Existing
- Proposed

SECONDARY HIGHWAY
80 feet standard right of way width
- Existing
- Proposed

LIMITED SECONDARY HIGHWAY
64 to 80 feet standard right of way width
- Existing
- Proposed

PARKWAY
Right of way width variable - 80 feet minimum
- Existing
- Proposed

OTHER
- Collector/Local Street (Thomas Bros. Maps C . street file)

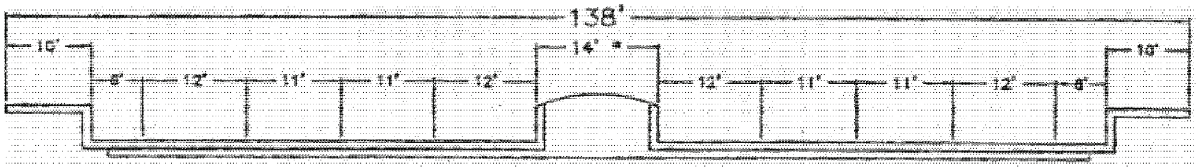


N

EXHIBIT 3-C

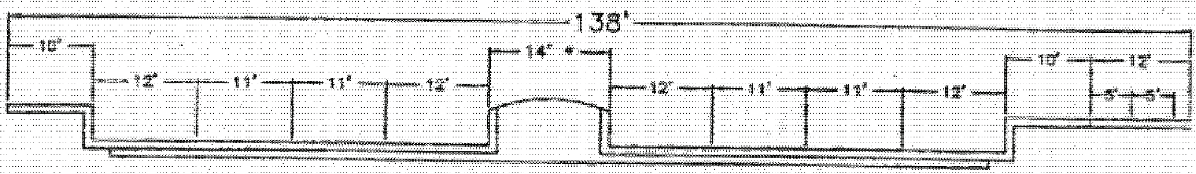
CITY OF SANTA CLARITA
GENERAL PLAN ROADWAY CROSS-SECTIONS

1. MAJOR ARTERIAL HIGHWAY 8-LANE ALTERNATIVE WITH BIKE LANE DETAIL



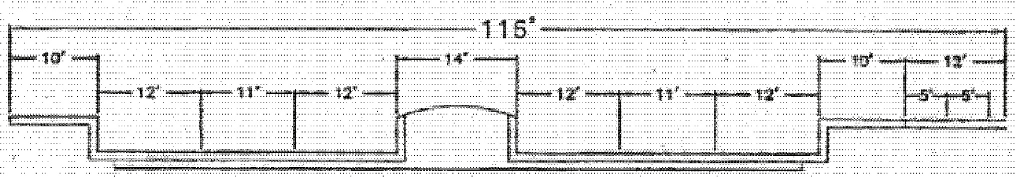
FOUR LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

2. MAJOR ARTERIAL HIGHWAY 8-LANE ALTERNATIVE WITH BIKE TRAIL DETAIL



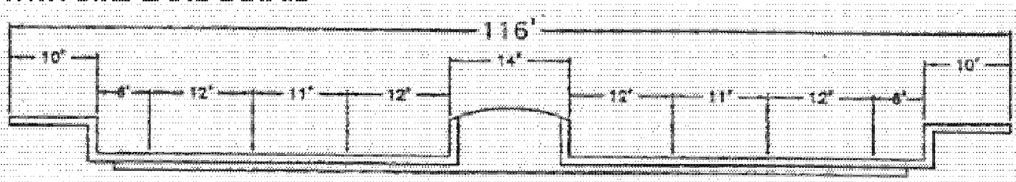
FOUR LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

3. MAJOR ARTERIAL HIGHWAY WITH BIKE TRAIL DETAIL



THREE LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

4. MAJOR ARTERIAL HIGHWAY WITH BIKE LANE DETAIL



THREE LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

Calgrove Boulevard provides east-west travel and classified as a Secondary Highway in the currently adopted City of Santa Clarita General Plan Circulation Element. Under the General Plan Circulation Element, a Secondary Highway is designated as a four-lane divided roadway with no on-street parking. South of Lyons Avenue to Calgrove Boulevard, Wiley Canyon Road is currently constructed as a two-lane undivided roadway with a posted speed limit of 45 mph. Bike lanes are provided along Calgrove Boulevard east of Wiley Canyon Road. West of Interstate 5, Calgrove Boulevard terminates at The Old Road and becomes Valley Street east of Wiley Canyon Road.

C. Analysis of Existing Conditions

1. Traffic Volumes and Conditions

The existing AM and PM peak hour turning movement counts are shown on Exhibits 3-D and 3-E, respectively. The intersection movement counts were taken on a typical weekday in the AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak periods. The turning movement counts were performed in April and May 2009. Traffic count worksheets are included in Appendix "A".

Existing average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-F. Existing ADT volumes are based upon collected daily traffic data. Existing ADT counts are included in Appendix "A".

2. Existing Intersection Level of Service

Existing peak hour traffic operations have been evaluated for the study area intersections using the HCM methodology. The results of this analysis are summarized in Table 3-1, along with the existing intersection geometrics and traffic control devices at the analysis locations. For existing traffic conditions, the following study area intersections are currently operating with an unacceptable level of service during the peak hours:

EXISTING AM PEAK HOUR INTERSECTION VOLUMES

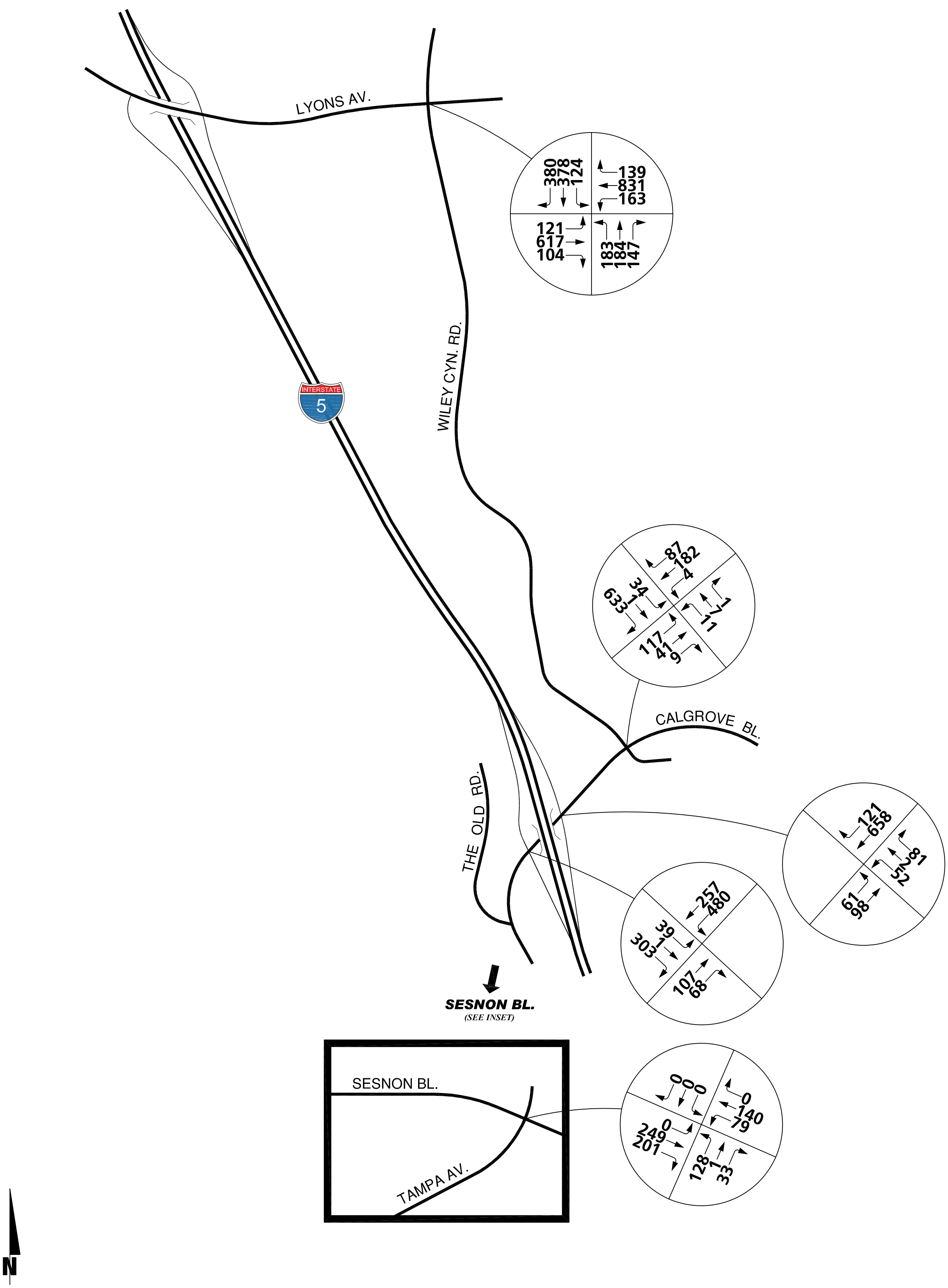
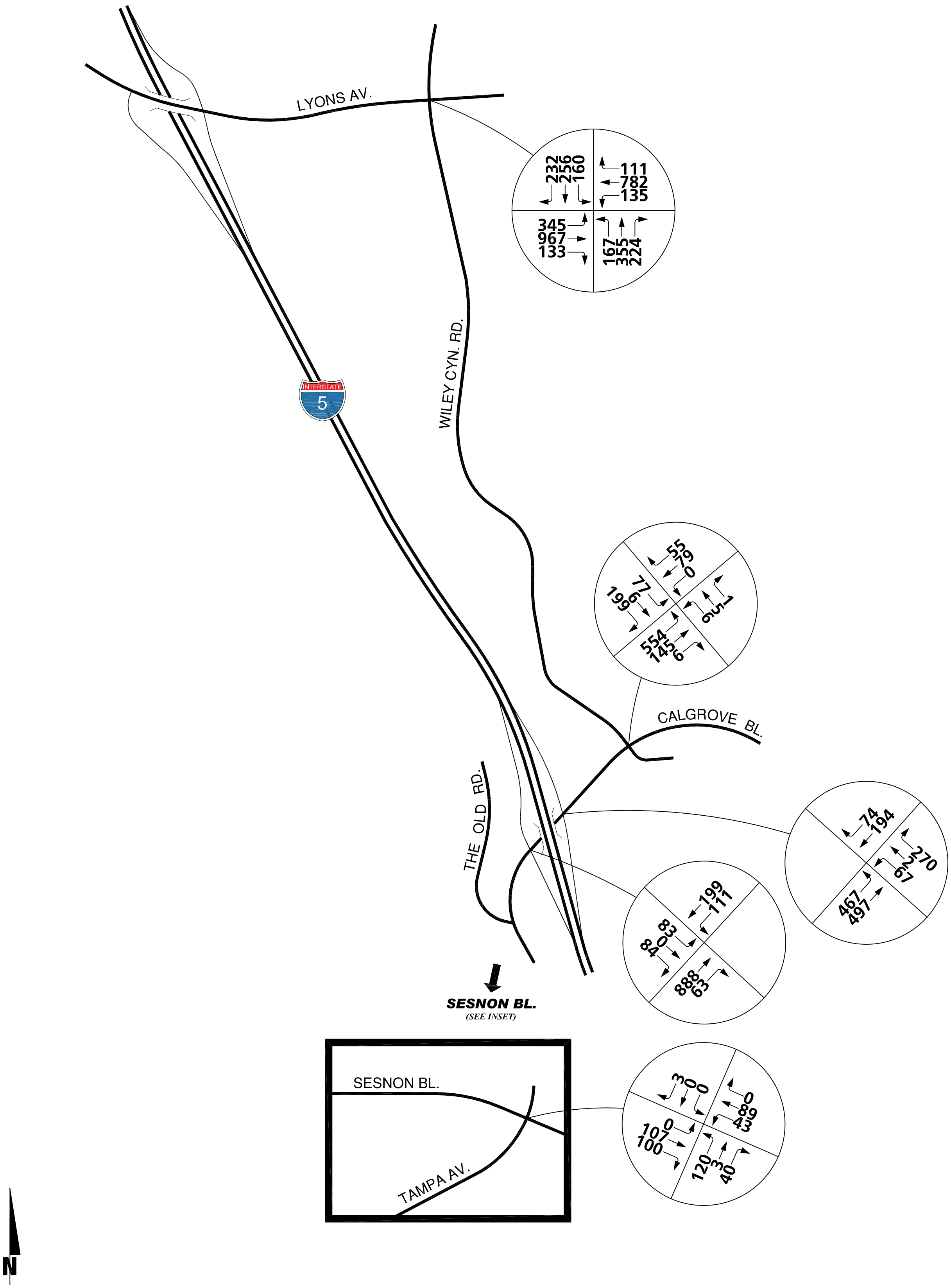


EXHIBIT 3-E
EXISTING PM PEAK HOUR INTERSECTION VOLUMES



EXISTING AVERAGE DAILY TRAFFIC (ADT)

LEGEND:

10.0 **= VEHICLES PER DAY (1000'S)**

TABLE 3-1

INTERSECTION ANALYSIS FOR EXISTING CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU/DELAY (SECS.)[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Interstate 5 SB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0	0	0	0.5	0.5	1	0	1	0	1	1	0	56.0	--[4]	F	F
Interstate 5 NB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0.5	0.5	1	0	0	0	1	0	0	0	1	1	21.8	--[4]	C	F
Wiley Canyon Road (NS) at:																	
• Lyons Avenue (EW)	TS	1	2	1	1	2	1>	2	2	1	1	3	0	0.727	0.720	C	C
• Calgrove Boulevard (EW)	CSS	0	1!	0	0.5	0.5	1>>	1	1	1	1	1	1	14.4	--[4]	B	F
Tampa Avenue (NS) at:																	
• Sesnon Avenue (EW)	AWS	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	13.0	8.8	B	A

---

1 When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared left-through-right lane; 0.5 = Shared Lane; **>** = Right Turn Overlap Phase

2 Per City of Santa Clarita Traffic Impact Report Guidelines, the ICU method is used to determine signalized intersection level of service. For unsignalized intersections, the intersection delay has been calculated using the HCM methodology.
Delay and level of service calculated using the following analysis software: Traffix, Version 8.0 (2008)
Intersection level of service shown is based on the V/C for intersections with traffic signals. For intersections with cross street stop control, the delay in seconds and level of service for worst individual movement (or movements sharing a single lane) are shown.

3 TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

4 -- = Delay High, Intersection Unstable, LOS "F"

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Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

HCM calculation worksheets for existing conditions are provided in Appendix "B".

Under existing conditions, the following study area intersections appear to meet the minimum criteria to warrant a traffic signal based on peak hour warrants:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Tampa Avenue (NS) at:

- Sesnon Boulevard (EW)

Traffic signal warrant worksheets are included in Appendix "C".

D. Existing Roadway Segment Level of Service

Table 3-2 presents the results of the existing roadway segment analysis. As shown in Table 3-2, the study area road segments are currently operating with acceptable levels of service.

E. Public Transit

The study area is currently served by Santa Clarita Transit. Within the study area identified in this study, Lyons Avenue is the only roadway currently serviced by Santa Clarita Transit Routes #4, #5, #6 and #14. Bus stops are located along Lyons Avenue, east of the I-5 NB ramps and east of Wiley Canyon.

TABLE 3-2

ROADWAY SEGMENT ANALYSIS FOR EXISTING CONDITIONS

ROADWAY SEGMENT	GENERAL PLAN ROAD CLASSIFICATION	EXISTING NUMBER OF LANES	LOS E CAPACITY [1]	EXISTING ADT [2]	VOLUME / CAPACITY	LOS
Lyons Avenue:						
• Between I-5 NB Ramps and Wiley Canyon Road	Major Arterial	6-Lane Divided	54,000	34,288	0.63	C
The Old Road:						
• West of the I-5 SB Ramps	Major Arterial	4-Lane Divided	36,000	11,366	0.32	A
Calgrove Boulevard:						
• Between I-5 NB Ramps and Wiley Canyon Road	Secondary Highway	2-Lane Undivided	15,000	10,081	0.67	C
Wiley Canyon Road:						
• South of Lyons Avenue	Secondary Highway	2-Lane Undivided	15,000	12,529	0.84	D

---

[1] Roadway capacities derived from the City of Santa Clarita General Plan Circulation Element. Per City of Santa Clarita Circulation Element, LOS "D" is "an accepted, though undesirable, condition." Therefore, the volume to capacity ratios are based on Level of Service "E".

[2] Average Daily Traffic (ADT) expressed in vehicles per day. Existing ADT values were obtained from empirical data. See Appendix "A".

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4.0 NEAR TERM TRAFFIC PROJECTION

To assess the potentially significant impacts of the project, future traffic volumes along the study area are determined by adding traffic generated by approved and/or currently pending development projects and ambient growth to existing traffic volumes.

A. Cumulative Development Traffic

1. Method of Projection

To assess the near term traffic conditions that is anticipated in conjunction with construction activities, existing traffic is combined with traffic from other surrounding development. Cumulative projects in the study area were identified in the City of Santa Clarita, the City of Los Angeles, and the County of Los Angeles. The research indicates that the following 18 cumulative developments are currently planned in the study area:

1. Downtown Newhall Specific Plan
2. North Newhall Specific Plan
3. South Santa Clarita Sphere of Influence Amendment, Annexation, and Prezone
4. Gate King Industrial Park
5. Placerita Canyon Sewer Backbone
6. Tract PM 60792
7. Tract 53653
8. BFI-Sunshine Canyon Landfill
9. Tract 50242
10. Tract 52905
11. Tract 52796
12. Env-2007-3572-MND
13. Tract 60913
14. Env-2008-5060-ND
15. Env-2008-3312-MND
16. Env-2006-5624-EAF
17. Env-2008-570-EAF
18. Env-2007-5288-MND

Near term traffic volumes projections include traffic generated by approved and "reasonably foreseeable pending projects that are expected to influence the study area." Some of the cumulative projects identified above are either too far away to add traffic to the study area intersections, do not generate a significant amount of traffic (i.e. a wireless telecommunications facility), or will not be developed by the time construction activities are completed. Based on this criteria, the following four developments have been included in the near term analysis along with a three (3) percent annual growth rate.

1. Tract 53653 – 186 single family residential units
2. Tract 50242 – 8 single family residential units
3. Tract 52905 – 37 single family residential units
4. Tract 52796 – 102 single family residential units

These projects are anticipated to generate a total of approximately 3,187 trip ends per day with 249 AM peak hour trips and 337 PM peak hour trips. The trip rates and trip generation estimates are presented in a tabular format in Appendix "D".

2. Trip Distribution

Trip distribution represents the directional orientation of traffic to and from the cumulative projects. Trip distribution is heavily influenced by the geographical location of the site, the location of commercial uses in the general region and the proximity to the regional freeway system.

Trip distribution for this study has been based upon near term (2010) conditions and those highway facilities representing the completion time frame for the proposed road improvements. The directional distribution and assignment of the cumulative development traffic is included in Appendix "D".

3. Non-Site Traffic for Study Area

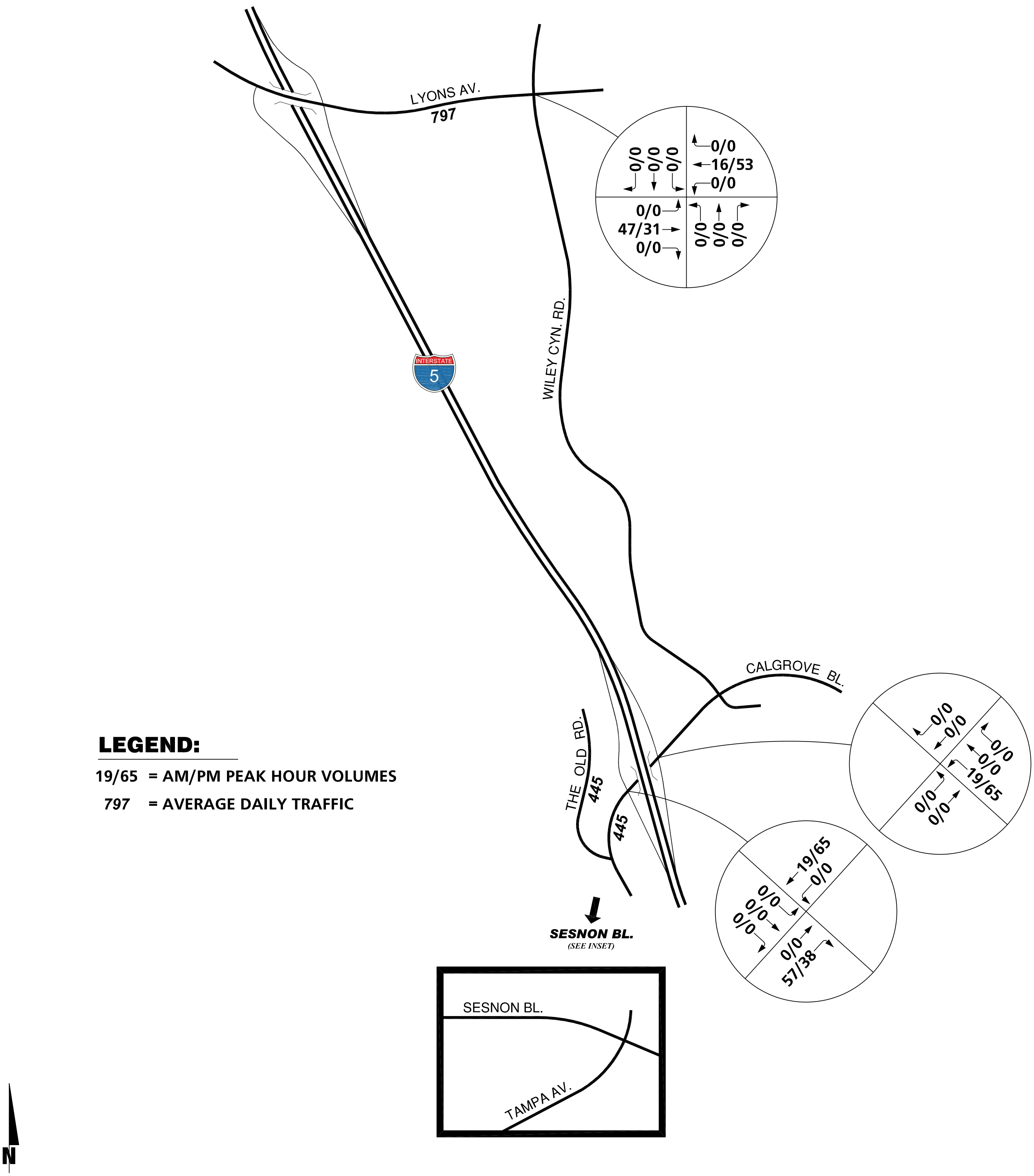
The cumulative AM and PM peak hour turning movements and ADT are shown on Exhibit 4-A.

B. Ambient Growth

In addition to the traffic from the cumulative projects described above, an ambient growth rate has been added to existing volumes. This ambient growth rate accounts for traffic flowing through the study area that is not directly accounted for from known projects. The City of Santa Clarita indicates that a 3 percent per year rate is appropriate.

EXHIBIT 4-A

CUMULATIVE PROJECTS TRAFFIC VOLUMES



5.0 TRAFFIC IMPACTS

This section of the report describes the results of the level of service analysis for the study area intersections and roadway segments for existing plus ambient growth plus cumulative conditions – with and without the project-related construction traffic. Additional recommendations to address potential impacts are also discussed.

A. Existing Plus Ambient Growth Plus Cumulative Traffic Conditions

The traffic generated for the cumulative projects has been added to existing volumes, in addition to an ambient growth rate. The cumulative development traffic has been distributed to the existing, as-built roadway network. These assumptions have been used to analyze the study area roadway segments and intersections.

1. Roadway Segment Analysis

The study area roadway segments were analyzed with the traffic generated from the cumulative projects and ambient growth added to existing traffic volumes. Existing plus ambient growth plus cumulative average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 5-A.

Table 5-1 details the results of the existing plus ambient growth plus cumulative projects segment analysis. As shown in Table 5-1, with the addition of the ambient growth and cumulative traffic, the roadway segments are anticipated to continue to operate with an acceptable LOS.

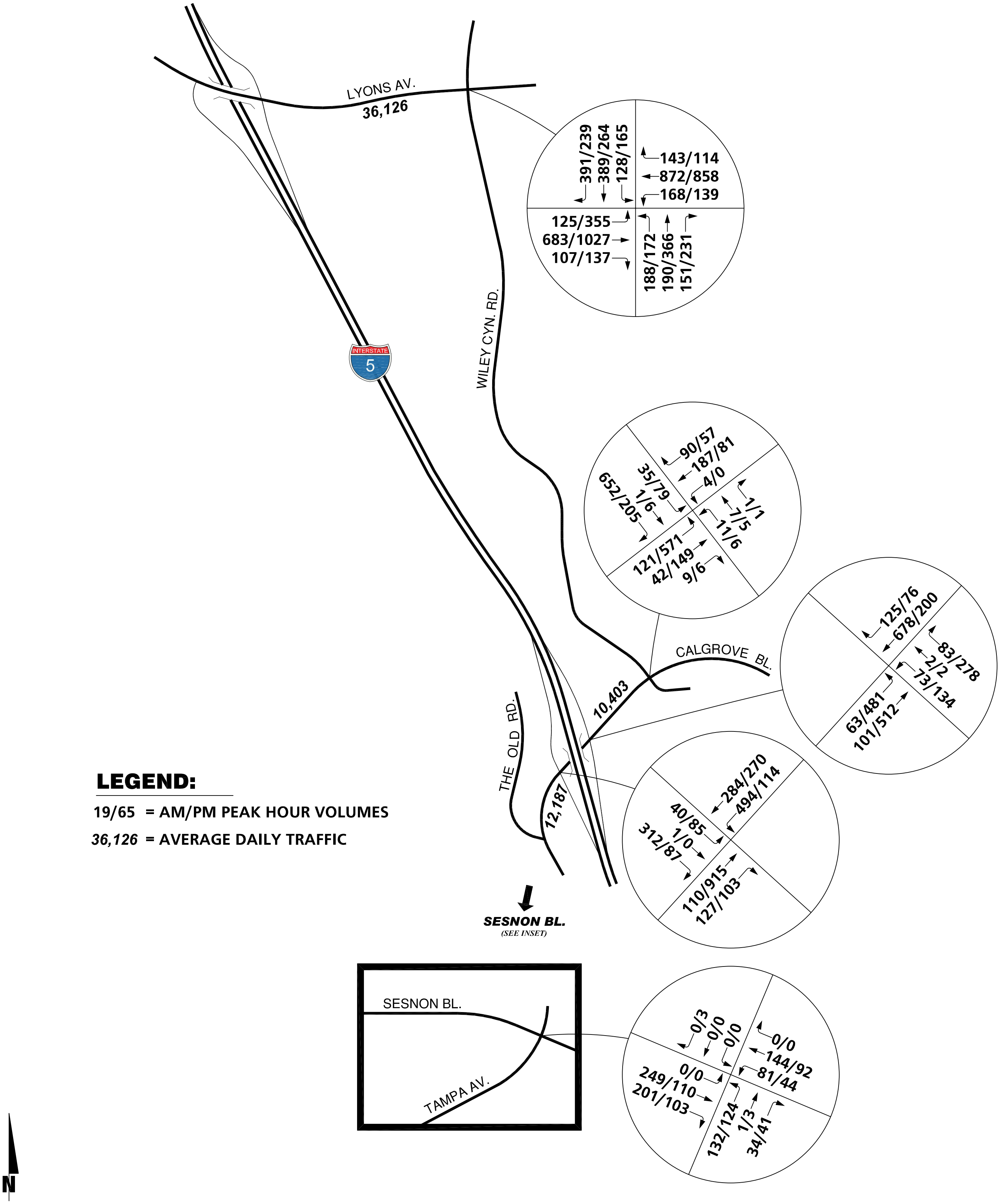
2. Intersection Analysis

The intersections were analyzed with the traffic generated from the ambient growth and cumulative projects added to existing traffic volumes. The existing plus ambient plus cumulative AM and PM peak hour turning movement counts are shown on Exhibit 5-A.

Existing plus ambient growth plus cumulative intersection level of service analysis results are shown in Table 5-2. As shown in Table 5-2, for existing plus ambient growth plus

EXHIBIT 5-A

EXISTING PLUS AMBIENT PLUS CUMULATIVE PROJECT TRAFFIC VOLUMES



LEGEND:

19/65 = AM/PM PEAK HOUR VOLUMES

36,126 = AVERAGE DAILY TRAFFIC

TABLE 5-1

ROADWAY SEGMENT ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE CONDITIONS

ROADWAY SEGMENT	GENERAL PLAN ROAD CLASSIFICATION	EXISTING NUMBER OF LANES	LOS E CAPACITY [1]	EAC ADT [2]	VOLUME / CAPACITY	LOS
Lyons Avenue:						
• Between I-5 NB Ramps and Wiley Canyon Road	Major Arterial	6-Lane Divided	54,000	36,114	0.67	C
The Old Road:						
• West of the I-5 SB Ramps	Major Arterial	4-Lane Divided	36,000	12,152	0.34	A
Calgrove Boulevard:						
• Between I-5 NB Ramps and Wiley Canyon Road	Secondary Highway	2-Lane Undivided	15,000	10,383	0.69	C
Wiley Canyon Road:						
• South of Lyons Avenue	Secondary Highway	2-Lane Undivided	15,000	12,905	0.86	D

---

1 Roadway capacities derived from the City of Santa Clarita General Plan Circulation Element. Per City of Santa Clarita Circulation Element, LOS "D" is "an accepted, though undesirable, condition." Therefore, the volume to capacity ratios are based on Level of Service "E".

2 Average Daily Traffic (ADT) expressed in vehicles per day. See Appendix "A".

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TABLE 5-2

INTERSECTION ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTHBOUND L	T	R	SOUTHBOUND L	T	R	EASTBOUND L	T	R	WESTBOUND L	T	R	ICU/DELAY (SECS.)[2] AM	PM	LEVEL OF SERVICE AM	PM
Interstate 5 SB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0	0	0	0.5	0.5	1	0	1	0	1	1	0	72.4	--[4]	F	F
Interstate 5 NB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0.5	0.5	1	0	0	0	1	0	0	0	1	1	24.7	--[4]	C	F
Wiley Canyon Road (NS) at:																	
• Lyons Avenue (EW)	TS	1	2	1	1	2	1>	2	2	1	1	3	0	0.761	0.748	C	C
• Calgrove Boulevard (EW)	CSS	0	1!	0	0.5	0.5	1>>	1	1	1	1	1	1	14.7	--[4]	B	F
Tampa Avenue (NS) at:																	
• Sesnon Avenue (EW)	AWS	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	13.4	8.8	B	A

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[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared left-through-right lane; 0.5 = Shared Lane; **>** = Right Turn Overlap Phase

[2] Per City of Santa Clarita Traffic Impact Report Guidelines, the ICU method is used to determine signalized intersection level of service. For unsignalized intersections, the intersection delay has been calculated using the HCM methodology.
Delay and level of service calculated using the following analysis software: Traffix, Version 8.0 (2008)
Intersection level of service shown is based on the V/C for intersections with traffic signals. For intersections with cross street stop control, the delay in seconds and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, LOS "F"

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cumulative traffic conditions, the following study area intersections are anticipated to continue to operate with unacceptable levels of service (LOS "E" or worse) during the peak hours:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

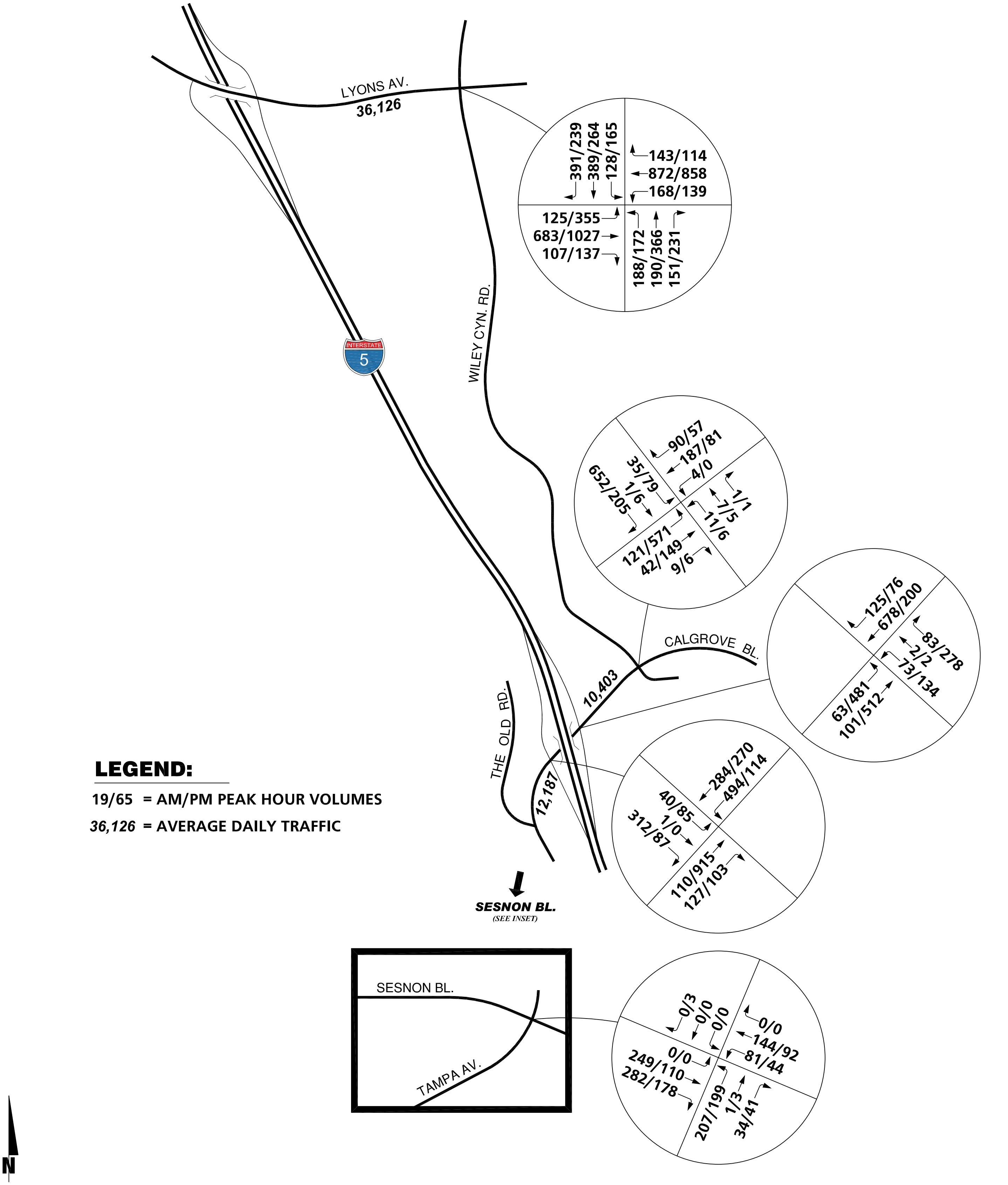
Existing plus ambient growth plus cumulative project intersection operations worksheets are provided in Appendix "E".

C. <u>Existing Plus Ambient Growth Plus Cumulative With Project-Related Construction Traffic Conditions</u>

The traffic generated from the ambient growth and cumulative developments has been added to existing volumes. It has been assumed that the project may consist of a lane closure for the southbound through traffic at the intersection of Wiley Canyon Road/Lyons Avenue. In addition, approximately 150 construction workers are expected to access the site driveway off of Senson Boulevard (just west of Tampa Avenue). However, a shuttle service consisting of 15 shuttles is proposed at a parking lot (to be determined) near the 118 Freeway to minimize the number of trips at the Sesnon Blvd/Tampa Ave. intersection. For a typical day, the site is also expected to have 7 construction vehicle trips per day and 1 material delivery truck trip per day during non-peak hours.

A passenger car equivalency (PCE) factor has been applied to the large, oversized vehicles for operational analysis purposes. A PCE factor is defined as an equivalency value applied to a large vehicle to equate it's characteristics to those of a passenger car. PCE values generally range from 1.0 (for passenger cars) to 3.0 (very large slow moving trucks) depending on the vehicle's

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES



size, weight, maneuverability, and speed. The PCE values for the vehicles to/from the site on a typical day would be as follows:

15 Shuttles (1.5 PCE) = 22.5 PCE, say 23 PCE
7 construction vehicles (2.5 PCE) = 17.5 PCE, say 18 PCE
1 materials delivery truck (2.5 PCE) = 2.5 PCE, say 3 PCE
Total = 44 PCE

For the purposes of the evaluation conducted for this PEA, it has been assumed that a worst case condition of 75 PCE's to/from the site would occur during the AM and PM peak hour. These assumptions have been used to analyze the study area roadway segments and intersections to ensure a conservative, worst case condition. Exhibit 5-B illustrates the daily, AM peak hour, and PM peak hour traffic volumes associated with this condition.

Roadway Segment Analysis

The study area roadway segments were analyzed with the traffic generated from the ambient growth and cumulative projects added to existing traffic volumes. Table 5-3 summarizes the results of the existing plus ambient growth plus cumulative "with project related conditions" segment analysis. As shown in Table 5-3, with the addition of ambient and cumulative traffic, the roadway segments are anticipated to continue to operate with acceptable LOS at the study area road segments.

1. Intersection Analysis

The intersections were analyzed with the traffic generated from the ambient growth and cumulative projects added to existing traffic volumes. Existing plus ambient growth and cumulative with project-related conditions intersection level of service analysis results are shown in Table 5-4. As shown in Table 5-4, the study area intersections are anticipated to operate with acceptable levels of service (LOS "D" or better) during the peak hours, except for the following locations:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

TABLE 5-3

ROADWAY SEGMENT ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE + PROJECT CONDITIONS

ROADWAY SEGMENT	GENERAL PLAN ROAD CLASSIFICATION	EXISTING NUMBER OF LANES	LOS E CAPACITY [1]	EAC ADT [2]	VOLUME / CAPACITY	LOS
Lyons Avenue:						
• Between I-5 NB Ramps and Wiley Canyon Road	Major Arterial	6-Lane Divided	54,000	36,114	0.67	C
The Old Road:						
• West of the I-5 SB Ramps	Major Arterial	4-Lane Divided	36,000	12,152	0.34	A
Calgrove Boulevard:						
• Between I-5 NB Ramps and Wiley Canyon Road	Secondary Highway	2-Lane Undivided	15,000	10,383	0.69	C
Wiley Canyon Road:						
• South of Lyons Avenue	Secondary Highway	2-Lane Undivided	15,000	12,905	0.86	D

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[1] Roadway capacities derived from the City of Santa Clarita General Plan Circulation Element. Per City of Santa Clarita Circulation Element, LOS "D" is "an accepted, though undesirable, condition." Therefore, the volume to capacity ratios are based on Level of Service "E".

[2] Average Daily Traffic (ADT) expressed in vehicles per day.

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TABLE 5-4

INTERSECTION ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE + PROJECT CONDITIONS

		INTERSECTION APPROACH LANES[1]												ICU/DELAY (SECS.)[2]		LEVEL OF SERVICE	
	TRAFFIC	NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
INTERSECTION	CONTROL[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Interstate 5 SB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0	0	0	0.5	0.5	1	0	1	0	1	1	0	72.4	--[4]	F	F
Interstate 5 NB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0.5	0.5	1	0	0	0	1	0	0	0	1	1	24.7	--[4]	C	F
Wiley Canyon Road (NS) at:																	
• Lyons Avenue (EW)	TS	1	2	1	1	2	1>	2	2	1	1	3	0	0.800	0.773	D	C
• Calgrove Boulevard (EW)	CSS	0	1!	0	0.5	0.5	1>>	1	1	1	1	1	1	14.7	--[4]	B	F
Tampa Avenue (NS) at:																	
• Sesnon Avenue (EW)	AWS	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	18.6	9.9	C	A

---

1 When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared left-through-right lane; 0.5 = Shared Lane; **>** = Right Turn Overlap Phase

2 Per City of Santa Clarita Traffic Impact Report Guidelines, the ICU method is used to determine signalized intersection level of service. For unsignalized intersections, the intersection delay has been calculated using the HCM methodology.
Delay and level of service calculated using the following analysis software: Traffix, Version 8.0 (2008)
Intersection level of service shown is based on the V/C for intersections with traffic signals. For intersections with cross street stop control, the delay in seconds and level of service for worst individual movement (or movements sharing a single lane) are shown.

3 TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

4 -- = Delay High, Intersection Unstable, LOS "F"

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Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Existing plus ambient plus cumulative plus project service level calculation worksheets are provided in Appendix "F".

D. Near Term With and Without Project-Related Conditions - Level of Service Comparison

The results of the road segment and intersection levels of service analysis indicate the effects of the project-related conditions from a level of service standpoint. The near term with and without the project-related conditions level of service at the study area road segments and intersections are compared.

1. Roadway Segment Level of Service Comparison

The study area roadway segments levels of service are anticipated to operate acceptably for near term conditions with the additional traffic due to construction workers and a southbound lane closure on Wiley Road. Therefore, a significant impact is not anticipated.

2. Intersection Level of Service Comparison

The project is expected to add traffic to the intersection of Sesnon Blvd/Tampa Ave. and potentially cause a lane closure along Wiley Canyon Road (just south of Lyons Avenue). The intersections levels of service at these two locations during the peak hours are expected to operate acceptably. The following intersections are expected to operate at unacceptable service levels with or without the project-related activities:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Since the project is not anticipated to add traffic or reduce the capacity of these intersections, the project is not anticipated to cause an impact.

6.0 POTENTIAL IMPACTS AND MITIGATION MEASURES

This section summarizes the potential traffic impacts associated with the near-term cumulative conditions in conjunction with the construction activities of the proposed project.

A. Significance Criteria

The following significance criteria are based on the CEQA Guidelines. A project is determined to cause a potentially significant impact if it would:

- Cause an increase in traffic , which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate parking capacity; or
- Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

B. Impact Analysis

Would the project cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

LESS THAN SIGNIFICANT WITH MITIGATION

The project is expected to shuttle approximately 150 construction workers from an off-site parking area to the site. In addition, the operations would also consist of 7 construction vehicle trips per day and 1 material delivery truck trip per day during non-peak hours to/from the site. For analysis purposes, a very conservative estimate of 75 round trips per hour was assumed. It is more likely that the actual number of passenger car equivalent trips to/from the site would be less than the 75 PCE's analyzed, but this provides a "worst case" condition. The increase in traffic associated with these additional trips has been evaluated at the intersection of Tampa Avenue/Sesnon Boulevard. Based on the intersection operations, this location is anticipated to operate at acceptable service levels with the additional trips. Therefore, no significant impacts are anticipated.

The project should ensure that a shuttle program is instituted to reduce the amount of individual construction workers to the site.

Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

LESS THAN SIGNIFICNT

A temporary lane closure on Wiley Canyon Road may be required as part of the construction activities. Based on the level of service analysis, the intersection of Wiley Canyon Road/Lyons Avenue is expected to operate at acceptable levels in conjunction with the lane closure.

Would the project result in change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

NO IMPACT

No operating airports or heliports are within a close proximity of the project. Helicopters would not be used during project construction. Therefore, the project would not include any features that would disrupt or affect air traffic.

Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?

LESS THAN SIGNIFICANT WITH MITIGATION

A temporary lane closure on Wiley Canyon Road may be required as part of the construction activities. In order to minimize short-term construction-related impacts on local traffic, and potential traffic safety hazards, a traffic control plan should be prepared in accordance with the latest version of SCE's WATCH manual.

Would the project result in inadequate parking capacity?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATION.

The project is anticipated to involve a lane closure along Wiley Canyon Road, south of Lyons Avenue. However, since parking is currently not allowed on this segment of roadway, no impact to the parking capacity on Wiley Canyon Road is expected.

The project is also anticipated to shuttle construction workers between an off-site parking area and the site. In order to ensure that a parking deficiency does not occur, a site should be chosen that demonstrates that excess parking will be available to accommodate the construction workers.

Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

NO IMPACT.

The project would not conflict with adopted policies, plans, or programs that support alternative transportation in the project area since no physical alterations to alternative transportation facilities would occur.

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APPENDIX A

TRAFFIC COUNT WORKSHEETS

TDSSW, Inc.
Event Counts

EventCount-290 -- English (ENU)

Datasets:

Site: **[12801] Lyons Ave - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A: 2 - East bound. - Added to totals. (1)
Input B: 4 - West bound. - Excluded from totals. (0)
Survey Duration: 13:18 Tuesday, April 28, 2009 => 11:54 Friday, May 01, 2009
File: Z:\mcdata\Crossroads\2009\128\1280101May2009.EC0 (Base)
Identifier: A570G7NP MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm: Event Count
Data type: Axle sensors - Separate (Count)

Profile:

Filter time: **14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name: Factory default profile
Scheme: Count events divided by two.
Units: Non metric (ft, mi, ft/s, mph, lb, ton)
In profile: Events = 58230 / 60316 (96.54%)

*** Tuesday, April 28, 2009=9836 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1210	1417	1516	1620	1210	966	795	510	374	218	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	278	386	392	502	323	259	237	149	114	84	37
-	-	-	-	-	-	-	-	-	-	-	-	-	-	292	331	344	400	296	258	191	140	97	53	25
-	-	-	-	-	-	-	-	-	-	-	-	-	-	314	360	376	359	302	244	184	106	90	52	29
-	-	-	-	-	-	-	-	-	-	-	-	-	-	326	340	404	359	289	205	183	115	73	29	20

*** Wednesday, April 29, 2009=17127, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
111	59	52	35	56	145	333	774	922	797	855	925	1087	1117	1304	1330	1451	1516	1315	987	787	556	377	236	
37	18	15	10	10	20	67	141	252	221	201	192	255	264	303	329	330	350	342	291	223	163	99	86	40
25	14	18	8	7	40	42	147	223	165	207	245	278	268	282	355	360	365	328	239	198	132	108	55	42
29	16	9	8	11	40	99	213	208	204	204	228	278	278	355	316	351	385	333	225	195	129	97	56	28
20	11	10	9	28	45	125	273	239	207	243	260	276	307	364	330	410	416	312	232	171	132	73	39	18

AM Peak 1145 - 1245 (1071), AM PHF=0.96 PM Peak 1700 - 1800 (1516), PM PHF=0.91

*** Thursday, April 30, 2009=2352 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
128	55	53	34	49	138	347	719	829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40	20	15	6	10	31	53	121	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	6	14	9	9	27	58	151	207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	20	13	7	12	36	107	187	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9	11	12	18	44	129	260	202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-291 -- English (ENU)

Datasets:
Site: **[12801] Lyons Ave - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A: 2 - East bound. - Excluded from totals. (0)
Input B: 4 - West bound. - Added to totals. (1)
Survey Duration: 13:18 Tuesday, April 28, 2009 => 11:54 Friday, May 01, 2009
File: Z:\mcdata\Crossroads\2009\128\128010 1May2009.EC0 (Base)
Identifier: A570G7NP MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm: Event Count
Data type: Axle sensors - Separate (Count)

Profile:
Filter time: **14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name: Factory default profile
Scheme: Count events divided by two.
Units: Non metric (ft, mi, ft/s, mph, lb, ton)
In profile: Events = 58230 / 60316 (96.54%)

*** Tuesday, April 28, 2009=8212 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1105**	**1149**	**1222**	**1300**	**1107**	**879**	**642**	**434**	**237**	**137**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	258	311	280	338	278	247	197	133	76	50	24
-	-	-	-	-	-	-	-	-	-	-	-	-	-	279	334	291	341	299	229	161	120	72	34	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	296	253	337	322	269	194	148	101	49	23	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	272	251	314	299	261	209	136	80	40	30	13

*** Wednesday, April 29, 2009=17161, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
65	**38**	**24**	**43**	**121**	**425**	**695**	**1010**	**1204**	**925**	**902**	**1118**	**1236**	**1108**	**1072**	**1238**	**1138**	**1284**	**1101**	**840**	**675**	**494**	**277**	**128**	
24	12	6	8	11	76	121	195	**391**	240	208	260	310	292	276	314	269	**306**	289	216	165	148	102	47	25
18	14	3	13	25	82	141	221	**343**	259	225	290	307	295	262	282	286	**336**	269	227	189	114	64	27	15
10	7	11	11	38	118	194	**252**	231	215	220	266	323	268	283	326	267	**314**	264	191	179	142	60	24	19
13	5	4	11	47	149	239	**342**	239	211	249	302	296	253	251	316	316	**328**	279	206	142	90	51	30	10

AM Peak 0730 - 0830 (1328), AM PHF=0.85 PM Peak 1700 - 1800 (1284), PM PHF=0.96

*** Thursday, April 30, 2009=3541 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
69	**54**	**28**	**48**	**100**	**394**	**651**	**990**	**1207**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
25	12	7	9	13	62	138	199	356	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	14	8	13	14	85	140	197	341	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	18	7	11	29	118	163	260	235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	10	6	15	44	129	210	334	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-298 -- English (ENU)

Datasets:

Site:	**[12802E] Calgrove Blvd - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:47 Tuesday, April 28, 2009 => 11:47 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12802E01May2009.EC0 (Base)
Identifier:	A5613NK0 MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 8251 / 8304 (99.36%)

*** Tuesday, April 28, 2009=3166 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	313	376	504	604	505	313	203	184	108	56	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	92	107	127	132	82	55	51	31	17	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	94	116	156	130	78	52	45	32	13	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	89	84	137	153	113	74	54	42	21	13	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	106	144	168	130	79	42	46	24	13	7

*** Wednesday, April 29, 2009=4636, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
33	16	12	6	8	22	65	148	140	116	154	166	207	260	313	390	529	597	519	309	266	187	120	53	
10	2	3	1	2	6	14	34	38	27	32	47	**51**	68	75	96	116	128	**138**	93	76	42	42	15	11
10	3	4	3	0	6	14	28	34	28	39	40	**49**	63	70	89	135	**141**	130	82	66	57	24	12	4
6	5	2	1	0	6	16	40	40	24	43	39	**47**	59	74	103	**139**	**139**	126	71	65	48	38	11	5
7	6	3	1	6	4	21	46	28	37	40	**40**	60	70	94	102	139	**189**	125	63	59	40	16	15	7

AM Peak 1145 - 1245 (187), AM PHF=0.92 PM Peak 1715 - 1815 (607), PM PHF=0.80

*** Thursday, April 30, 2009=449 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
27	20	17	7	10	27	60	127	154	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	7	7	3	1	6	8	22	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	3	4	1	3	1	12	33	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	5	2	2	3	10	13	38	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	5	4	1	3	10	27	34	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-293 -- English (ENU)

Datasets:

Site: **[12802W] Calgrove Blvd - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A: 0 - Unused or unknown. - Added to totals. (1)
Input B: 0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration: 13:48 Tuesday, April 28, 2009 => 11:51 Friday, May 01, 2009
File: Z:\mcdata\Crossroads\2009\128\12802W01May2009.EC0 (Plus)
Identifier: M278T7ZB MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm: Event Count
Data type: Axle sensors - Separate (Count)

Profile:

Filter time: **14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name: Factory default profile
Scheme: Count events divided by two.
Units: Non metric (ft, mi, ft/s, mph, lb, ton)
In profile: Events = 9442 / 9484 (99.56%)

*** Tuesday, April 28, 2009=1765 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**242**	**229**	**285**	**243**	**229**	**203**	**124**	**103**	**71**	**36**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	66	71	58	63	46	39	30	20	12	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	48	66	56	52	56	27	27	22	12	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	60	72	59	57	57	39	24	18	5	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	55	76	70	57	44	19	22	11	7	3

*** Wednesday, April 29, 2009=5445, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
15	**10**	**6**	**15**	**41**	**246**	**558**	**776**	**599**	**307**	**270**	**222**	**241**	**223**	**241**	**257**	**280**	**288**	**289**	**196**	**139**	**104**	**79**	**43**	
8	1	1	2	2	34	92	**207**	190	76	61	63	67	51	51	74	73	65	76	50	37	21	17	12	4
1	2	4	4	9	57	123	**209**	160	90	87	55	66	62	70	55	79	**81**	72	53	41	30	23	7	6
3	2	0	4	17	68	160	**189**	150	67	66	60	55	54	51	72	64	**69**	77	44	38	33	26	5	5
3	5	1	5	13	87	183	171	99	74	56	44	53	56	69	56	64	**73**	64	49	23	20	13	19	3

AM Peak 0645 - 0745 (788), AM PHF=0.94 PM Peak 1715 - 1815 (299), PM PHF=0.92

*** Thursday, April 30, 2009=2232 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
18	**13**	**11**	**16**	**55**	**256**	**514**	**772**	**577**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
4	1	3	2	6	35	87	193	205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	2	7	47	121	239	151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	3	0	7	20	70	120	187	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	2	2	5	22	104	186	153	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-294 -- English (ENU)

Datasets:

Site:	**[12803N] Wiley Canyon Rd - S/O Lyons Ave**
Input A:	1 - North bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:34 Tuesday, April 28, 2009 => 11:53 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12803N01May2009.EC0 (Plus)
Identifier:	M508KRAN MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 10982 / 11311 (97.09%)

*** Tuesday, April 28, 2009=3598 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	**422**	**492**	**581**	**659**	**545**	**420**	**203**	**134**	**95**	**47**	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	86	126	145	149	155	119	57	33	29	16	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	111	116	133	161	133	109	51	37	32	11	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	126	121	167	165	122	94	53	28	22	9	8
–	–	–	–	–	–	–	–	–	–	–	–	–	–	99	129	136	184	135	98	42	36	12	11	9

*** Wednesday, April 29, 2009=6348, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
33	**17**	**6**	**10**	**21**	**74**	**175**	**398**	**359**	**309**	**263**	**310**	**331**	**319**	**417**	**490**	**571**	**625**	**616**	**396**	**293**	**171**	**99**	**45**	
11	4	1	1	2	10	25	63	**150**	91	54	77	82	78	99	138	146	149	**175**	120	89	45	24	14	6
5	5	3	5	4	19	38	64	87	78	68	71	96	78	123	117	146	141	**173**	111	67	52	24	14	9
8	4	1	2	4	18	53	**108**	61	64	61	102	79	88	94	119	141	**152**	137	96	67	36	27	6	3
9	4	1	2	11	27	59	**163**	61	76	80	60	74	75	101	116	138	**183**	131	69	70	38	24	11	6

AM Peak 0730 - 0830 (508), AM PHF=0.78 PM Peak 1730 - 1830 (683), PM PHF=0.93

*** Thursday, April 30, 2009=1036 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
24	**24**	**10**	**7**	**18**	**62**	**169**	**351**	**371**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
6	6	5	3	3	8	27	47	147	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	9	3	1	6	10	27	57	93	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	8	1	1	3	14	44	98	48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	1	1	2	6	30	71	149	83	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TDSSW, Inc.
Event Counts

EventCount-295 -- English (ENU)

Datasets:

Site:	**[12803S] Wiley Canyon Rd - S/O Lyons Ave**
Input A:	3 - South bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:35 Tuesday, April 28, 2009 => 11:50 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12803S01May2009.EC0 (Plus)
Identifier:	1387F8VW MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 10836 / 11137 (97.30%)

*** Tuesday, April 28, 2009=2992 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
–	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**373**	**384**	**452**	**420**	**418**	**328**	**239**	**205**	**122**	**51**	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	96	94	112	118	114	69	69	69	42	25	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	103	106	101	100	106	94	48	54	36	11	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	78	86	119	108	102	89	68	48	18	7	7
–	–	–	–	–	–	–	–	–	–	–	–	–	–	96	98	120	94	96	76	54	34	26	8	2

*** Wednesday, April 29, 2009=6181, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
23	**13**	**12**	**12**	**32**	**140**	**353**	**649**	**530**	**241**	**228**	**261**	**283**	**273**	**370**	**390**	**441**	**457**	**463**	**329**	**300**	**194**	**116**	**71**	
11	4	2	1	2	20	52	135	**181**	56	47	53	68	70	102	101	102	105	**132**	91	62	47	38	22	11
3	4	5	2	6	34	83	**172**	149	75	60	56	61	66	96	91	93	119	**120**	67	80	49	40	19	12
7	1	2	4	12	42	112	**157**	117	58	54	75	76	64	68	100	123	108	**116**	90	88	42	20	18	5
2	4	3	5	12	44	106	**185**	83	52	67	77	78	73	104	98	123	**125**	95	81	70	56	18	12	4

AM Peak 0715 - 0815 (695), AM PHF=0.94 PM Peak 1745 - 1845 (493), PM PHF=0.93

*** Thursday, April 30, 2009=1662 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
32	**19**	**14**	**9**	**37**	**133**	**328**	**607**	**483**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	
11	4	5	2	4	18	54	126	179	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	8	3	1	4	21	84	170	123	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5	3	1	1	12	36	75	157	105	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	4	5	5	17	58	115	154	76	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TDSSW, Inc.
Event Counts

EventCount-296 -- English (ENU)

Datasets:

Site:	**[12804] The Old Road - W/O I-5 S/B Ramps**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	4 - West bound. - Excluded from totals. (0)
Survey Duration:	13:58 Tuesday, April 28, 2009 => 11:49 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\1280401May2009.EC0 (Plus)
Identifier:	M293M05F MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 19429 / 20088 (96.72%)

*** Tuesday, April 28, 2009=3985 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**309**	**464**	**787**	**960**	**729**	**331**	**138**	**114**	**72**	**81**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	59	98	200	212	240	94	41	21	17	25	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	95	175	253	198	85	34	27	30	27	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	117	211	243	145	85	34	29	15	18	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	99	154	201	252	146	67	29	37	10	11	15

*** Wednesday, April 29, 2009=6034, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
41	**26**	**20**	**20**	**18**	**66**	**104**	**181**	**158**	**191**	**204**	**233**	**233**	**238**	**305**	**459**	**842**	**1088**	**804**	**343**	**212**	**131**	**67**	**50**	
9	0	6	0	3	12	20	40	49	40	35	56	**80**	54	67	87	182	235	**267**	106	73	44	19	12	7
12	7	8	6	4	14	17	31	39	49	45	57	**64**	75	73	95	217	**290**	194	103	55	28	23	14	6
5	14	4	11	7	23	31	58	36	54	**58**	**69**	49	57	79	131	225	**261**	209	84	48	32	21	13	1
15	5	2	3	4	17	36	52	34	48	66	**51**	40	52	86	146	218	**302**	134	50	36	27	4	11	3

AM Peak 1130 - 1230 (264), AM PHF=0.82 PM Peak 1715 - 1815 (1120), PM PHF=0.93

*** Thursday, April 30, 2009=575 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
17	**11**	**6**	**5**	**16**	**46**	**110**	**179**	**185**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
7	4	1	3	1	3	14	27	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	2	3	1	2	13	25	64	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	2	1	1	6	12	30	38	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	1	0	7	18	41	50	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-297 -- English (ENU)

Datasets:

Site:	**[12804] The Old Road - W/O I-5 S/B Ramps**
Input A:	2 - East bound. - Excluded from totals. (0)
Input B:	4 - West bound. - Added to totals. (1)
Survey Duration:	13:58 Tuesday, April 28, 2009 => 11:49 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\1280401May2009.EC0 (Plus)
Identifier:	M293M05F MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 19429 / 20088 (96.72%)

*** Tuesday, April 28, 2009=1717 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**261**	**308**	**298**	**288**	**168**	**149**	**73**	**89**	**56**	**27**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	72	73	71	50	41	16	23	19	7	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	88	62	87	44	31	19	28	12	5	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	68	59	80	35	40	22	18	19	4	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	80	104	50	39	37	16	20	6	11	1

*** Wednesday, April 29, 2009=5332, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
13	**11**	**9**	**9**	**21**	**153**	**554**	**863**	**553**	**259**	**242**	**236**	**279**	**266**	**305**	**300**	**312**	**347**	**226**	**131**	**99**	**70**	**46**	**28**	
3	2	0	3	2	12	92	**201**	169	71	68	68	66	70	66	73	65	**88**	55	43	25	18	16	5	5
7	1	3	1	2	29	117	**238**	170	72	74	51	65	85	85	76	81	**97**	52	20	27	21	10	6	5
2	5	4	3	11	54	165	**214**	134	65	42	55	75	54	67	77	**76**	76	53	30	27	14	13	9	3
1	3	2	2	6	58	180	**210**	80	51	58	62	73	57	87	74	**90**	86	66	38	20	17	7	8	1

AM Peak 0700 - 0800 (863), AM PHF=0.91 PM Peak 1630 - 1730 (351), PM PHF=0.90

*** Thursday, April 30, 2009=1785 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
14	**9**	**4**	**10**	**19**	**175**	**497**	**686**	**371**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
5	3	2	0	2	14	94	181	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	1	0	2	5	34	127	214	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	1	4	6	50	123	173	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	2	1	4	6	77	153	118	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128040
Site Code : 00128040
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

	I-5 S/B Off Ramp Southbound					Calgrove Blvd Westbound					I-5 S/B On Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	10	1	75	0	86	125	58	0	0	183	0	0	0	0	0	0	25	14	0	39	0	308	308
07:15	5	0	81	0	86	125	80	0	0	205	0	0	0	1	0	0	18	17	0	35	1	326	327
07:30	6	0	57	0	63	130	65	0	0	195	0	0	0	0	0	0	33	19	0	52	0	310	310
07:45	18	0	90	0	108	100	54	0	0	154	0	0	0	0	0	0	31	18	0	49	0	311	311
Total	39	1	303	0	343	480	257	0	0	737	0	0	0	1	0	0	107	68	0	175	1	1255	1256
08:00	13	1	64	0	78	120	49	0	0	169	0	0	0	0	0	0	32	13	0	45	0	292	292
08:15	19	0	76	0	95	98	47	0	0	145	0	0	0	0	0	0	25	20	0	45	0	285	285
08:30	16	1	44	0	61	109	63	0	0	172	0	0	0	0	0	0	29	12	0	41	0	274	274
08:45	6	1	23	0	30	59	35	0	0	94	0	0	0	0	0	0	12	14	1	26	1	150	151
Total	54	3	207	0	264	386	194	0	0	580	0	0	0	0	0	0	98	59	1	157	1	1001	1002
Grand Total	93	4	510	0	607	866	451	0	0	1317	0	0	0	1	0	0	205	127	1	332	2	2256	2258
Apprch %	15.3	0.7	84.0			65.8	34.2	0.0			0.0	0.0	0.0			0.0	61.7	38.3					
Total %	4.1	0.2	22.6		26.9	38.4	20.0	0.0		58.4	0.0	0.0	0.0		0.0	0.0	9.1	5.6		14.7	0.1	99.9	

	I-5 S/B Off Ramp Southbound				Calgrove Blvd Westbound				I-5 S/B On Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:00																
Volume	39	1	303	343	480	257	0	737	0	0	0	0	0	107	68	175	1255
Percent	11.4	0.3	88.3		65.1	34.9	0.0		0.0	0.0	0.0		0.0	61.1	38.9		
07:15 Volume	5	0	81	86	125	80	0	205	0	0	0	0	0	18	17	35	326
Peak Factor																	0.962
High Int.	07:45				07:15				6:45:00 AM				07:30				
Volume	18	0	90	108	125	80	0	205	0	0	0	0	0	33	19	52	
Peak Factor				0.794				0.899								0.841	

TDSSW, Inc.
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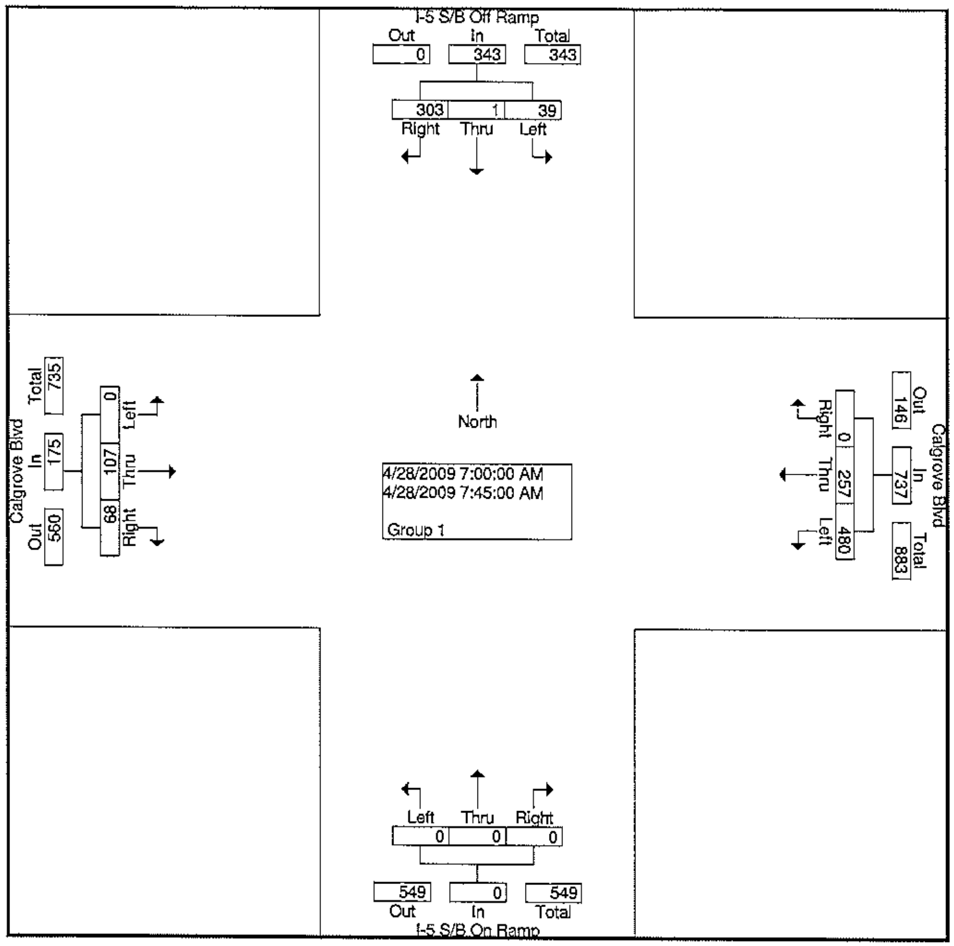
Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128040
Site Code : 00128040
Start Date : 4/28/2009
Page No : 2



Weather: Clear & Dry
Counted by: C. Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

File Name : 09128030
Site Code : 00128030
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

	I-5 N/B On Ramp Southbound					Calgrove Blvd Westbound					I-5 N/B Off Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00	0	0	0	0	0	0	186	22	0	208	6	0	16	0	22	17	17	0	0	34	0	264	264
07:15	0	0	0	0	0	0	195	22	0	217	12	1	20	0	33	12	11	0	0	23	0	273	273
07:30	0	0	0	0	0	0	168	23	0	191	16	0	26	0	42	19	22	0	0	41	0	274	274
07:45	0	0	0	0	0	0	144	33	0	177	11	0	17	0	28	14	36	0	0	50	0	255	255
Total	0	0	0	0	0	0	693	100	0	793	45	1	79	0	125	62	86	0	0	148	0	1066	1066
08:00	0	0	0	0	0	0	151	43	0	194	13	1	18	0	32	16	29	0	0	45	0	271	271
08:15	0	0	0	0	0	0	145	22	0	167	10	0	18	0	28	11	33	0	0	44	0	239	239
08:30	0	0	0	0	0	0	147	15	0	162	16	0	14	0	30	11	37	0	0	48	0	240	240
08:45	0	0	0	0	0	0	86	17	0	103	13	2	22	0	37	8	11	0	0	19	0	159	159
Total	0	0	0	0	0	0	529	97	0	626	52	3	72	0	127	46	110	0	0	156	0	909	909
Grand Total	0	0	0	0	0	0	1222	197	0	1419	97	4	151	0	252	108	196	0	0	304	0	1975	1975
Apprch %	0.0	0.0	0.0			0.0	86.1	13.9			38.5	1.6	59.9			35.5	64.5	0.0					
Total %	0.0	0.0	0.0		0.0	0.0	61.9	10.0		71.8	4.9	0.2	7.6		12.8	5.5	9.9	0.0		15.4	0.0	100.0	

	I-5 N/B On Ramp Southbound				Calgrove Blvd Westbound				I-5 N/B Off Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	0	0	0	0	0	658	121	779	52	2	81	135	61	98	0	159	1073
Percent	0.0	0.0	0.0		0.0	84.5	15.5		38.5	1.5	60.0		38.4	61.6	0.0		
07:30 Volume	0	0	0	0	0	168	23	191	16	0	26	42	19	22	0	41	274
Peak Factor																	0.979
High Int.	6:45:00 AM				07:15				07:30				07:45				
Volume	0	0	0	0	0	195	22	217	16	0	26	42	14	36	0	50	
Peak Factor								0.897				0.804				0.795	

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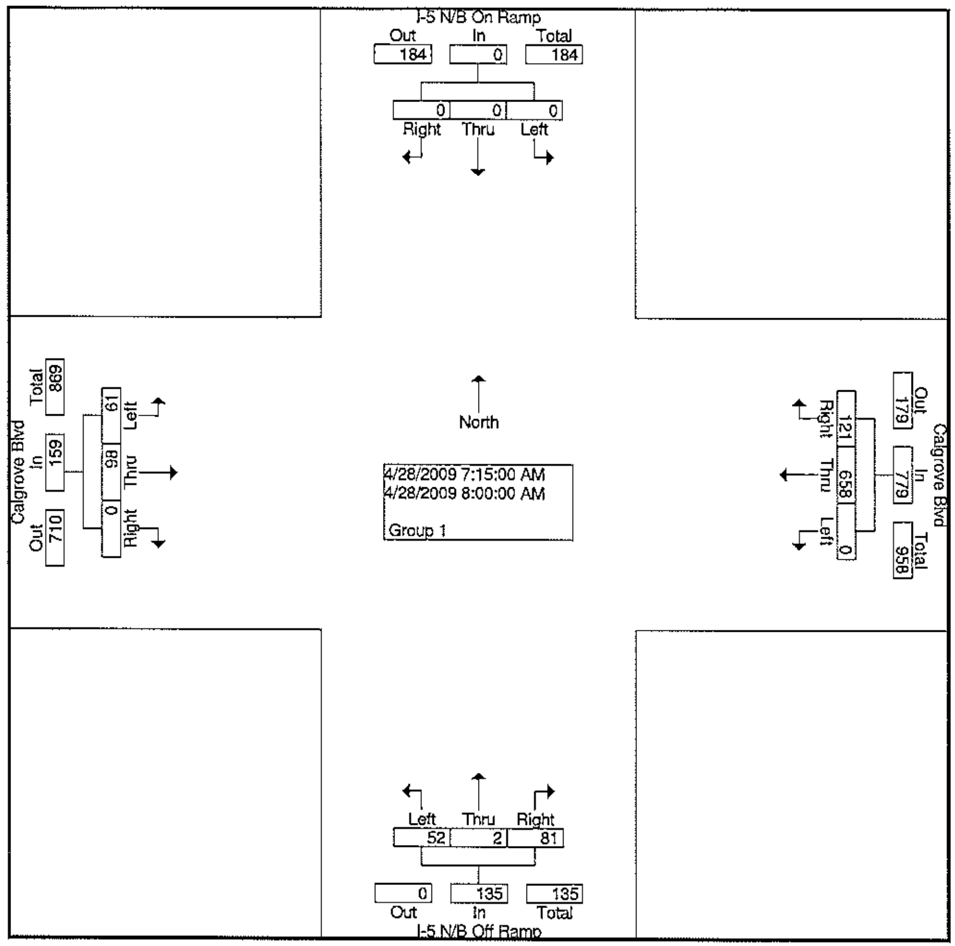
Weather: Clear & Dry
Counted by: C. Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128030
Site Code : 00128030
Start Date : 4/28/2009
Page No : 2



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Weather: Clear & Dry
Counted by:S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128020
Site Code : 00128020
Start Date : 4/29/2009
Page No : 1

Groups Printed- Group 1

	Wiley Cyn Road Southbound					Lyons Avenue Westbound					Wiley Cyn Road Northbound					Lyons Avenue Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	18	95	56	1	169	24	135	19	0	178	13	21	18	0	52	20	91	10	0	121	1	520	521
07:15	26	111	68	2	205	36	98	16	4	150	20	17	21	0	58	24	93	25	1	142	7	555	562
07:30	14	101	84	0	199	37	170	19	3	226	28	35	36	2	99	30	153	12	0	195	5	719	724
07:45	38	84	84	1	206	47	214	44	2	305	63	45	39	4	147	30	197	22	0	249	7	907	914
Total	96	391	292	4	779	144	617	98	9	859	124	118	114	6	356	104	534	69	1	707	20	2701	2721
08:00	30	99	119	0	248	45	223	54	4	322	63	62	41	5	166	30	146	38	4	214	13	950	963
08:15	42	94	93	2	229	34	224	22	0	280	29	42	31	0	102	31	121	32	3	184	5	795	800
08:30	24	67	92	2	183	22	146	14	1	182	14	25	16	0	55	34	140	23	2	197	5	617	622
08:45	32	54	93	1	179	22	166	16	6	204	29	41	24	0	94	27	148	17	2	192	9	669	678
Total	128	314	397	5	839	123	759	106	11	988	135	170	112	5	417	122	555	110	11	787	32	3031	3063
Grand Total	224	705	689	9	1618	267	1376	204	20	1847	259	288	226	11	773	226	1089	179	12	1494	52	5732	5784
Apprch %	13.8	43.6	42.6			14.5	74.5	11.0			33.5	37.3	29.2			15.1	72.9	12.0					
Total %	3.9	12.3	12.0		28.2	4.7	24.0	3.6		32.2	4.5	5.0	3.9		13.5	3.9	19.0	3.1		26.1	0.9	99.1	

	Wiley Cyn Road Southbound				Lyons Avenue Westbound				Wiley Cyn Road Northbound				Lyons Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:30																
Volume	124	378	380	882	163	831	139	1133	183	184	147	514	121	617	104	842	3371
Percent	14.1	42.9	43.1		14.4	73.3	12.3		35.6	35.8	28.6		14.4	73.3	12.4		
08:00 Volume	30	99	119	248	45	223	54	322	63	62	41	166	30	146	38	214	950
Peak Factor																	0.887
High Int.	08:00				08:00				08:00				07:45				
Volume	30	99	119	248	45	223	54	322	63	62	41	166	30	197	22	249	
Peak Factor				0.889				0.880				0.774				0.845	

Weather: Clear & Dry
Counted by:S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

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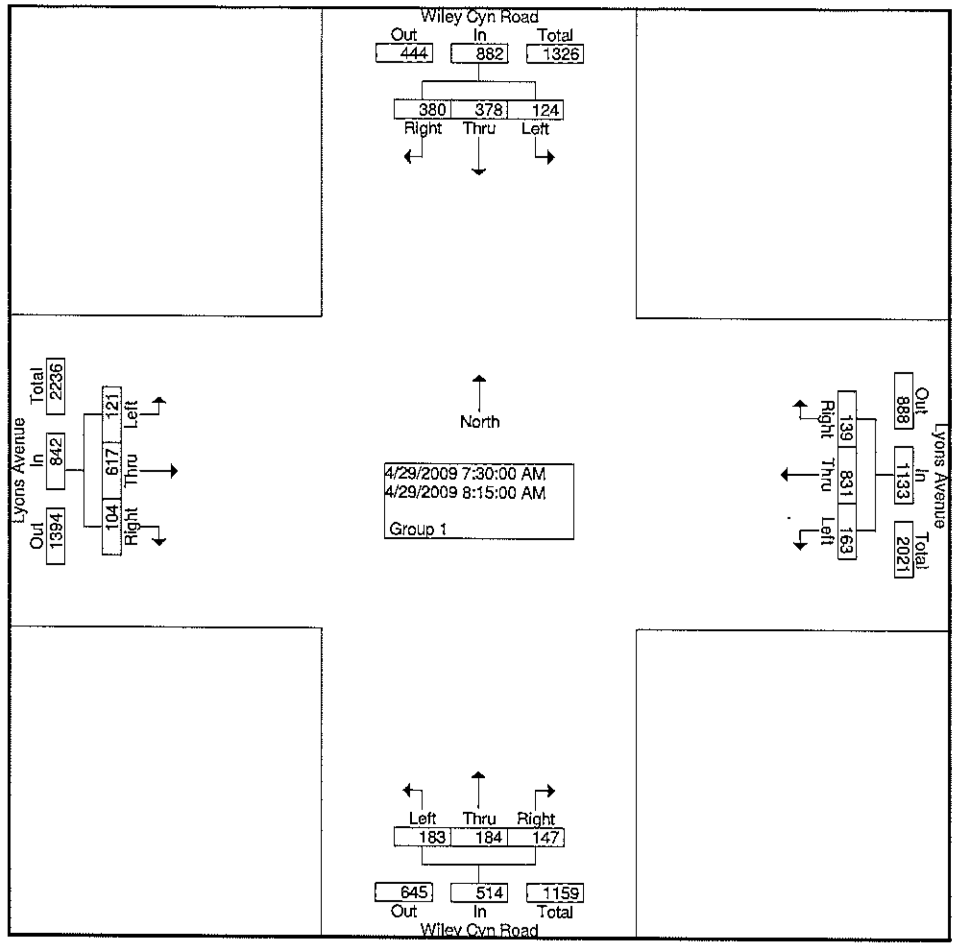
File Name : 09128020
Site Code : 00128020
Start Date : 4/29/2009
Page No : 2



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Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128010
Site Code : 00128010
Start Date : 4/30/2009
Page No : 1

Groups Printed- Group 1

	Wiley Canyon Road Southbound					Calgrove Blvd Westbound					Valley Oak Ct Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00	4	0	173	0	177	0	25	11	1	36	4	0	0	0	4	20	8	0	0	28	1	245	246
07:15	7	0	192	0	199	0	54	10	2	64	5	0	0	0	5	26	10	3	0	39	2	307	309
07:30	2	0	155	0	157	2	37	20	0	59	1	1	1	0	3	35	5	2	0	42	0	261	261
07:45	10	0	124	0	134	0	34	36	0	70	3	2	0	0	5	31	7	2	1	40	1	249	250
Total	23	0	644	0	667	2	150	77	3	229	13	3	1	0	17	112	30	7	1	149	4	1062	1066
08:00	15	1	162	0	178	2	57	21	0	80	2	4	0	0	6	25	19	2	0	46	0	310	310
08:15	12	0	122	0	134	0	37	7	0	44	2	1	0	0	3	27	16	3	0	46	0	227	227
08:30	13	3	109	0	125	0	34	10	0	44	0	0	0	0	0	36	19	0	0	55	0	224	224
08:45	10	1	71	0	82	0	26	14	0	40	1	0	0	0	1	27	16	0	0	43	0	166	166
Total	50	5	464	0	519	2	154	52	0	208	5	5	0	0	10	115	70	5	0	190	0	927	927
Grand Total	73	5	1108	0	1186	4	304	129	3	437	18	8	1	0	27	227	100	12	1	339	4	1989	1993
Apprch %	6.2	0.4	93.4			0.9	69.6	29.5			66.7	29.6	3.7			67.0	29.5	3.5					
Total %	3.7	0.3	55.7		59.6	0.2	15.3	6.5		22.0	0.9	0.4	0.1		1.4	11.4	5.0	0.6		17.0	0.2	99.8	

	Wiley Canyon Road Southbound				Calgrove Blvd Westbound				Valley Oak Ct Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	34	1	633	668	4	182	87	273	11	7	1	19	117	41	9	167	1127
Percent	5.1	0.1	94.8		1.5	66.7	31.9		57.9	36.8	5.3		70.1	24.6	5.4		
08:00 Volume	15	1	162	178	2	57	21	80	2	4	0	6	25	19	2	46	310
Peak Factor																	0.909
High Int.	07:15				08:00				08:00				08:00				
Volume	7	0	192	199	2	57	21	80	2	4	0	6	25	19	2	46	
Peak Factor				0.839				0.853				0.792				0.908	

Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

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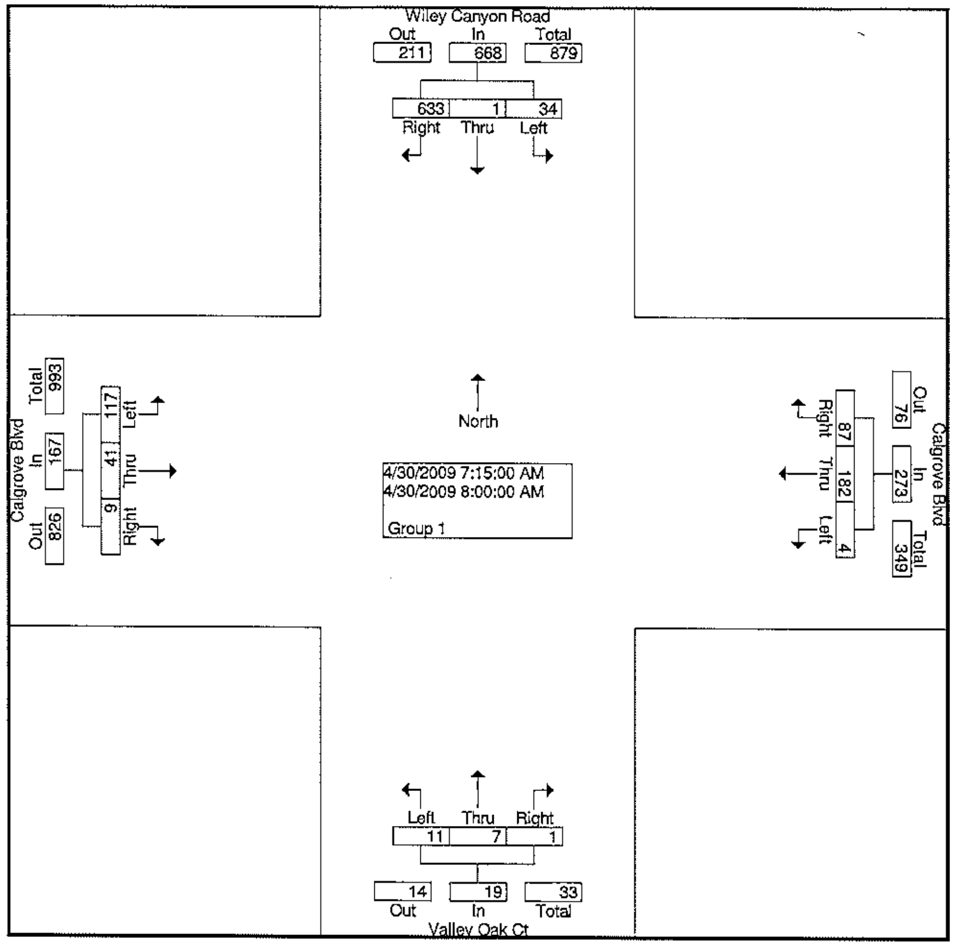
File Name : 09128010
Site Code : 00128010
Start Date : 4/30/2009
Page No : 2



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Weather : Clear & Dry
Counted By: M. Parish
Board #: D1-1431
Loc: Loc: Tampa Ave & Sasnon Blvd

File Name : 09128050
Site Code : 00128050
Start Date : 5/5/2009
Page No : 1

Groups Printed- Group 1

	Tampa Avenue Southbound					Sesnon Blvd Westbound					Tampa Avenue Northbound					Sesnon Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00	0	2	0	2	2	12	14	2	0	28	5	0	5	1	10	0	27	25	0	52	3	92	95
07:15	1	0	1	0	2	12	13	0	0	25	10	1	3	0	14	0	46	24	0	70	0	111	111
07:30	0	0	0	2	0	9	17	0	0	26	17	0	8	1	25	0	45	35	0	80	3	131	134
07:45	0	0	0	0	.0	13	22	0	0	35	21	0	5	2	26	0	66	28	0	94	2	155	157
Total	1	2	1	4	4	46	66	2	0	114	53	1	21	4	75	0	184	112	0	296	8	489	497
08:00	0	0	0	0	0	28	37	0	0	65	38	0	12	0	50	0	100	94	0	194	0	309	309
08:15	0	0	0	0	0	29	64	0	0	93	52	1	8	0	61	0	38	44	0	82	0	236	236
08:30	0	0	1	0	1	10	18	2	0	30	23	2	7	2	32	0	23	31	0	54	2	117	119
08:45	0	1	0	4	1	12	12	2	2	26	8	0	8	3	16	0	21	25	5	46	14	89	103
Total	0	1	1	4	2	79	131	4	2	214	121	3	35	5	159	0	182	194	5	376	16	751	767
Grand Total	1	3	2	8	6	125	197	6	2	328	174	4	56	9	234	0	366	306	5	672	24	1240	1264
Apprch %	16.7	50.0	33.3			38.1	60.1	1.8			74.4	1.7	23.9			0.0	54.5	45.5					
Total %	0.1	0.2	0.2		0.5	10.1	15.9	0.5		26.5	14.0	0.3	4.5		18.9	0.0	29.5	24.7		54.2	1.9	98.1	

	Tampa Avenue Southbound				Sesnon Blvd Westbound				Tampa Avenue Northbound				Sesnon Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:30																
Volume	0	0	0	0	79	140	0	219	128	1	33	162	0	249	201	450	831
Percent	0.0	0.0	0.0		36.1	63.9	0.0		79.0	0.6	20.4		0.0	55.3	44.7		
08:00 Volume	0	0	0	0	28	37	0	65	38	0	12	50	0	100	94	194	309
Peak Factor																	0.672
High Int.	6:45:00 AM				08:15				08:15				08:00				
Volume	0	0	0	0	29	64	0	93	52	1	8	61	0	100	94	194	
Peak Factor								0.589				0.664				0.580	

Weather : Clear & Dry
Counted By: M. Parish
Board #: D1-1431
Loc: Loc: Tampa Ave & Sasnon Blvd

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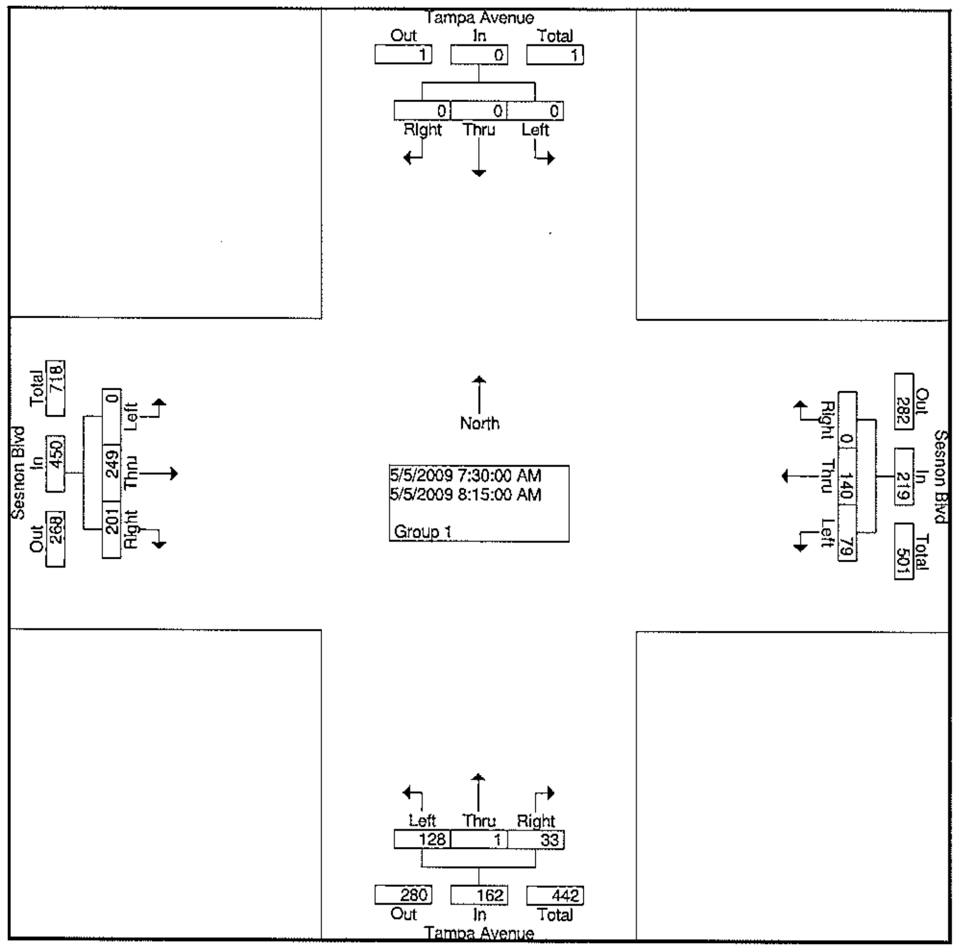
File Name : 09128050
Site Code : 00128050
Start Date : 5/5/2009
Page No : 2



Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

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File Name : 09128041
Site Code : 00128041
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

	I-5 S/B Off Ramp Southbound					Calgrove Blvd Westbound					I-5 S/B On Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
16:00	16	0	15	0	31	21	16	0	0	37	0	0	0	0	0	0	146	21	0	167	0	235	235
16:15	16	0	13	0	29	22	19	0	0	41	0	0	0	0	0	0	151	20	0	171	0	241	241
16:30	18	0	12	2	30	29	53	0	0	82	0	0	0	0	0	0	200	18	0	218	2	330	332
16:45	16	0	17	0	33	49	62	0	0	111	0	0	0	0	0	0	176	19	0	195	0	339	339
Total	66	0	57	2	123	121	150	0	0	271	0	0	0	0	0	0	673	78	0	751	2	1145	1147
17:00	15	0	27	0	42	17	58	0	0	75	0	0	0	0	0	0	159	18	0	177	0	294	294
17:15	18	0	28	0	46	24	50	0	0	74	0	0	0	0	0	0	267	15	0	282	0	402	402
17:30	18	0	14	0	32	32	48	0	0	80	0	0	0	0	0	0	250	18	0	268	0	380	380
17:45	32	0	15	1	47	38	43	0	0	81	0	0	0	0	0	0	212	12	0	224	1	352	353
Total	83	0	84	1	167	111	199	0	0	310	0	0	0	0	0	0	888	63	0	951	1	1428	1429
Grand Total	149	0	141	3	290	232	349	0	0	581	0	0	0	0	0	0	1561	141	0	1702	3	2573	2576
Apprch %	51.4	0.0	48.6			39.9	60.1	0.0			0.0	0.0	0.0			0.0	91.7	8.3					
Total %	5.8	0.0	5.5		11.3	9.0	13.6	0.0		22.6	0.0	0.0	0.0		0.0	0.0	60.7	5.5		66.1	0.1	99.9	

	I-5 S/B Off Ramp Southbound				Calgrove Blvd Westbound				I-5 S/B On Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	83	0	84	167	111	199	0	310	0	0	0	0	0	888	63	951	1428
Percent	49.7	0.0	50.3		35.8	64.2	0.0		0.0	0.0	0.0		0.0	93.4	6.6		
17:15 Volume	18	0	28	46	24	50	0	74	0	0	0	0	0	267	15	282	402
Peak Factor																	0.888
High Int.	17:45				17:45				3:45:00 PM				17:15				
Volume	32	0	15	47	38	43	0	81	0	0	0	0	0	267	15	282	
Peak Factor				0.888				0.957								0.843	

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Weather: Clear & Dry
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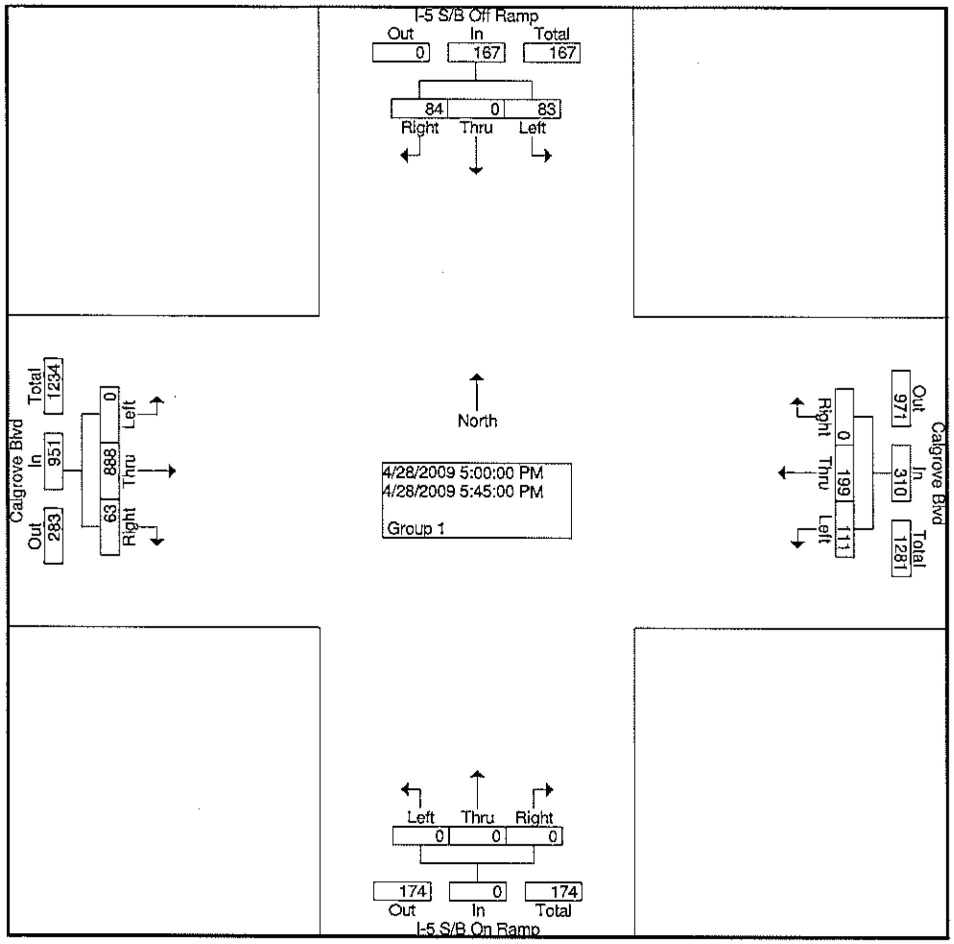
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128041
Site Code : 00128041
Start Date : 4/28/2009
Page No : 2



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Weather: Clear & Dry
Counted by: C Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128031
Site Code : 00128031
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

	I-5 N/B On Ramp Southbound					Calgrove Blvd Westbound					I-5 N/B Off Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
16:00	0	0	0	0	0	0	53	27	1	80	11	0	45	0	56	62	73	0	0	135	1	271	272
16:15	0	0	0	0	0	1	55	25	0	81	21	1	57	0	79	73	88	0	0	161	0	321	321
16:30	0	0	0	0	0	0	59	20	0	79	14	0	65	0	79	114	107	0	0	221	0	379	379
16:45	0	0	0	0	0	0	71	9	0	80	22	2	60	0	84	100	108	0	0	208	0	372	372
Total	0	0	0	0	0	1	238	81	1	320	68	3	227	0	298	349	376	0	0	725	1	1343	1344
17:00	0	0	0	0	0	0	49	15	0	64	12	0	60	0	72	95	104	0	0	199	0	335	335
17:15	0	0	0	0	0	0	47	20	0	67	10	0	75	0	85	126	122	0	0	248	0	400	400
17:30	0	0	0	0	0	0	48	19	0	67	25	1	64	0	90	118	127	0	0	245	0	402	402
17:45	0	0	0	0	0	0	50	20	0	70	20	1	71	0	92	128	144	0	0	272	0	434	434
Total	0	0	0	0	0	0	194	74	0	268	67	2	270	0	339	467	497	0	0	964	0	1571	1571
Grand Total	0	0	0	0	0	1	432	155	1	588	135	5	497	0	637	816	873	0	0	1689	1	2914	2915
Apprch %	0.0	0.0	0.0			0.2	73.5	26.4			21.2	0.8	78.0			48.3	51.7	0.0					
Total %	0.0	0.0	0.0		0.0	0.0	14.8	5.3		20.2	4.6	0.2	17.1		21.9	28.0	30.0	0.0		58.0	0.0	100.0	

	I-5 N/B On Ramp Southbound				Calgrove Blvd Westbound				I-5 N/B Off Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	0	0	0	0	0	194	74	268	67	2	270	339	467	497	0	964	1571
Percent	0.0	0.0	0.0		0.0	72.4	27.6		19.8	0.6	79.6		48.4	51.6	0.0		
17:45 Volume	0	0	0	0	0	50	20	70	20	1	71	92	128	144	0	272	434
Peak Factor																	0.905
High Int.	3:45:00 PM				17:45				17:45				17:45				
Volume	0	0	0	0	0	50	20	70	20	1	71	92	128	144	0	272	
Peak Factor								0.957				0.921				0.886	

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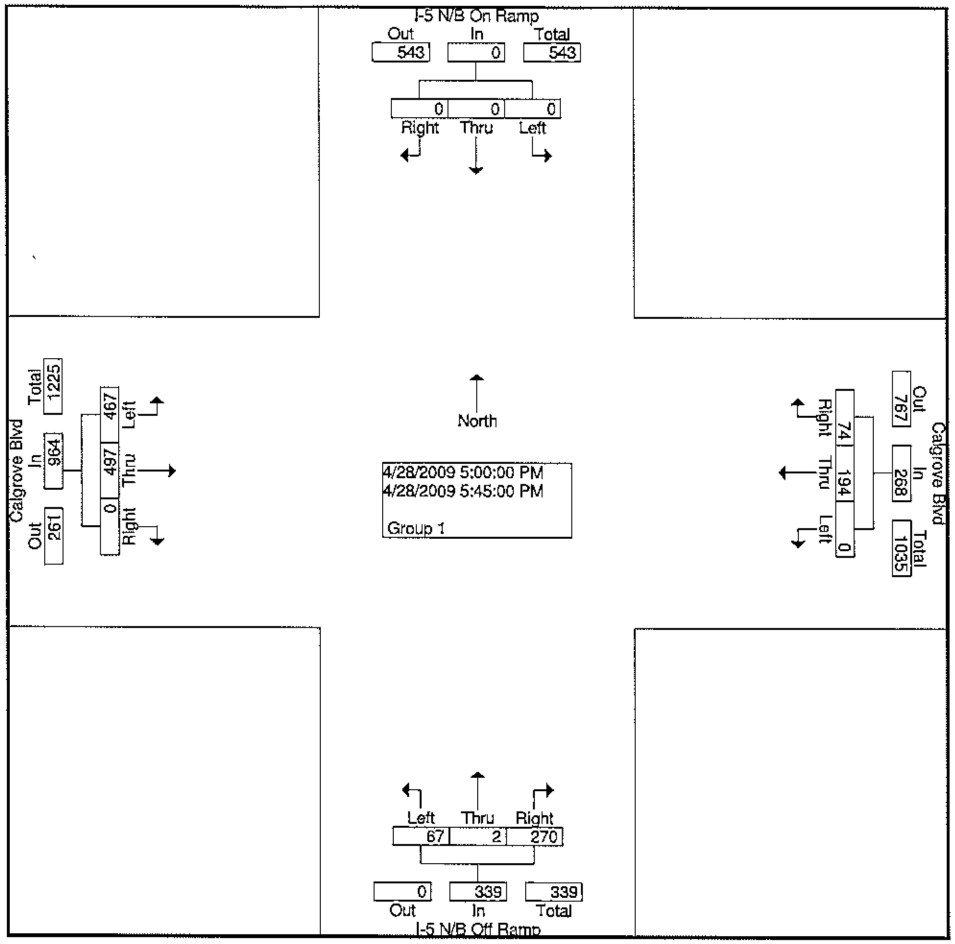
Weather: Clear & Dry
Counted by: C Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128031
Site Code : 00128031
Start Date : 4/28/2009
Page No : 2



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Weather: Clear & Dry
Counted by: S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128021
Site Code : 00128021
Start Date : 4/29/2009
Page No : 1

Groups Printed- Group 1

	Wiley Cyn Road Southbound					Lyons Avenue Westbound					Wiley Cyn Road Northbound					Lyons Avenue Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
16:00	44	56	59	1	159	33	145	24	4	202	40	88	49	4	177	75	219	31	5	325	14	863	877
16:15	28	56	49	2	133	39	192	37	9	268	40	73	58	14	171	80	255	26	0	361	25	933	958
16:30	44	64	53	1	161	36	152	27	4	215	38	95	66	6	199	69	226	29	3	324	14	899	913
16:45	48	64	60	2	172	35	210	29	2	274	46	71	60	6	177	92	291	40	0	423	10	1046	1056
Total	164	240	221	6	625	143	699	117	19	959	164	327	233	30	724	316	991	126	8	1433	63	3741	3804
17:00	37	75	54	0	166	34	191	28	1	253	32	102	46	3	180	102	215	25	0	342	4	941	945
17:15	31	53	65	4	149	30	229	27	2	286	51	87	52	2	190	82	235	39	0	356	8	981	989
17:30	34	46	66	0	146	40	170	27	1	237	40	78	50	3	168	110	206	28	0	344	4	895	899
17:45	44	57	68	2	169	41	207	23	4	271	53	98	42	12	193	76	270	37	4	383	22	1016	1038
Total	146	231	253	6	630	145	797	105	8	1047	176	365	190	20	731	370	926	129	4	1425	38	3833	3871
Grand Total	310	471	474	12	1255	288	1496	222	27	2006	340	692	423	50	1455	686	1917	255	12	2858	101	7574	7675
Apprch %	24.7	37.5	37.8			14.4	74.6	11.1			23.4	47.6	29.1			24.0	67.1	8.9					
Total %	4.1	6.2	6.3		16.6	3.8	19.8	2.9		26.5	4.5	9.1	5.6		19.2	9.1	25.3	3.4		37.7	1.3	98.7	

	Wiley Cyn Road Southbound				Lyons Avenue Westbound				Wiley Cyn Road Northbound				Lyons Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	16:30																
Volume	160	256	232	648	135	782	111	1028	167	355	224	746	345	967	133	1445	3867
Percent	24.7	39.5	35.8		13.1	76.1	10.8		22.4	47.6	30.0		23.9	66.9	9.2		
16:45 Volume	48	64	60	172	35	210	29	274	46	71	60	177	92	291	40	423	1046
Peak Factor																	0.924
High Int.	16:45				17:15				16:30				16:45				
Volume	48	64	60	172	30	229	27	286	38	95	66	199	92	291	40	423	
Peak Factor				0.942				0.899				0.937				0.854	

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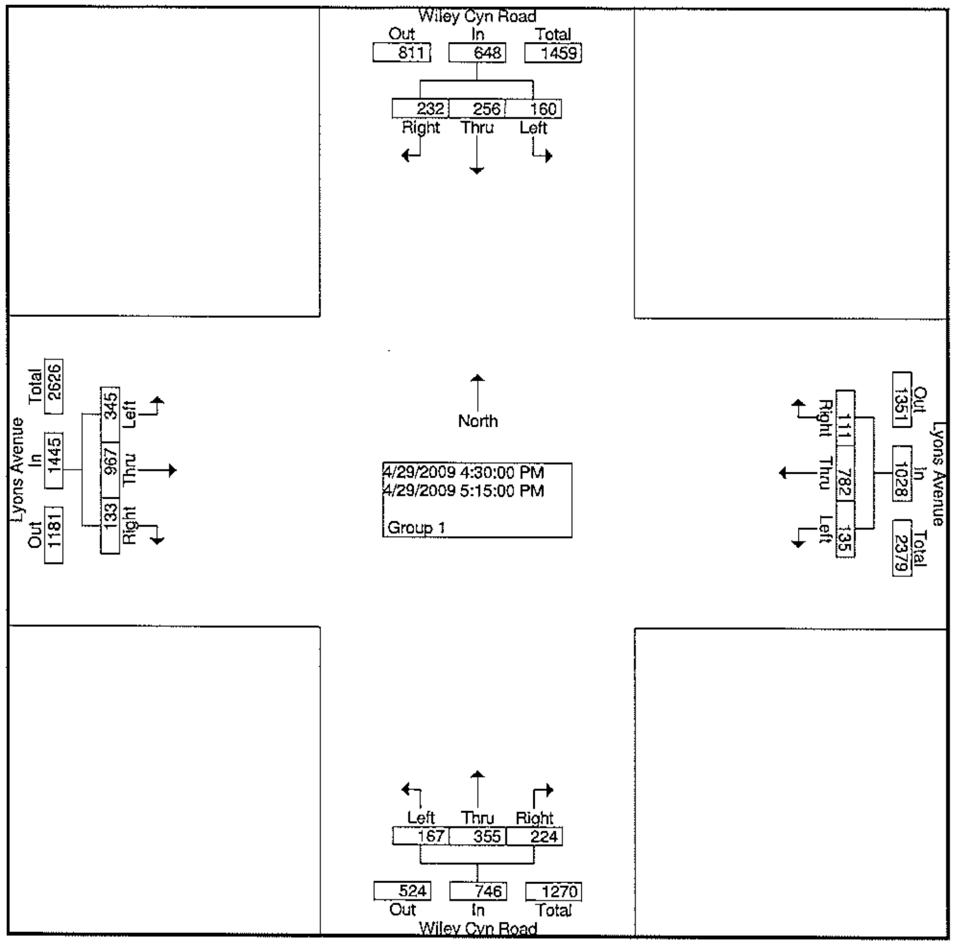
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128021
Site Code : 00128021
Start Date : 4/29/2009
Page No : 2



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Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128011
Site Code : 00128011
Start Date : 4/29/2009
Page No : 1

Groups Printed- Group 1

	Wiley Canyon Road Southbound					Calgrove Blvd Westbound					Valley Oak Ct Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
16:00	21	1	53	0	75	0	20	16	0	36	1	1	0	0	2	106	27	0	0	133	0	246	246
16:15	12	1	65	0	78	0	24	24	0	48	1	0	0	0	1	130	29	2	0	161	0	288	288
16:30	16	1	52	0	69	1	12	14	0	27	0	0	0	0	0	131	35	0	0	166	0	262	262
16:45	24	1	41	0	66	0	21	14	0	35	0	1	0	0	1	137	26	2	0	165	0	267	267
Total	73	4	211	0	288	1	77	68	0	146	2	2	0	0	4	504	117	4	0	625	0	1063	1063
17:00	17	1	44	0	62	0	17	12	0	29	1	2	0	0	3	123	34	0	0	157	0	251	251
17:15	16	2	62	0	80	0	19	13	0	32	1	2	0	0	3	128	35	3	0	166	0	281	281
17:30	24	0	45	0	69	0	21	18	0	39	3	1	0	0	4	135	34	3	0	172	0	284	284
17:45	20	3	48	0	71	0	22	12	3	34	1	0	1	0	2	168	42	0	0	210	3	317	320
Total	77	6	199	0	282	0	79	55	3	134	6	5	1	0	12	554	145	6	0	705	3	1133	1136
Grand Total	150	10	410	0	570	1	156	123	3	280	8	7	1	0	16	1058	262	10	0	1330	3	2196	2199
Apprch %	26.3	1.8	71.9			0.4	55.7	43.9			50.0	43.8	6.3			79.5	19.7	0.8					
Total %	6.8	0.5	18.7		26.0	0.0	7.1	5.6		12.8	0.4	0.3	0.0		0.7	48.2	11.9	0.5		60.6	0.1	99.9	

	Wiley Canyon Road Southbound				Calgrove Blvd Westbound				Valley Oak Ct Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	77	6	199	282	0	79	55	134	6	5	1	12	554	145	6	705	1133
Percent	27.3	2.1	70.6		0.0	59.0	41.0		50.0	41.7	8.3		78.6	20.6	0.9		
17:45 Volume	20	3	48	71	0	22	12	34	1	0	1	2	168	42	0	210	317
Peak Factor																	0.894
High Int.	17:15				17:30				17:30				17:45				
Volume	16	2	62	80	0	21	18	39	3	1	0	4	168	42	0	210	
Peak Factor				0.881				0.859				0.750				0.839	

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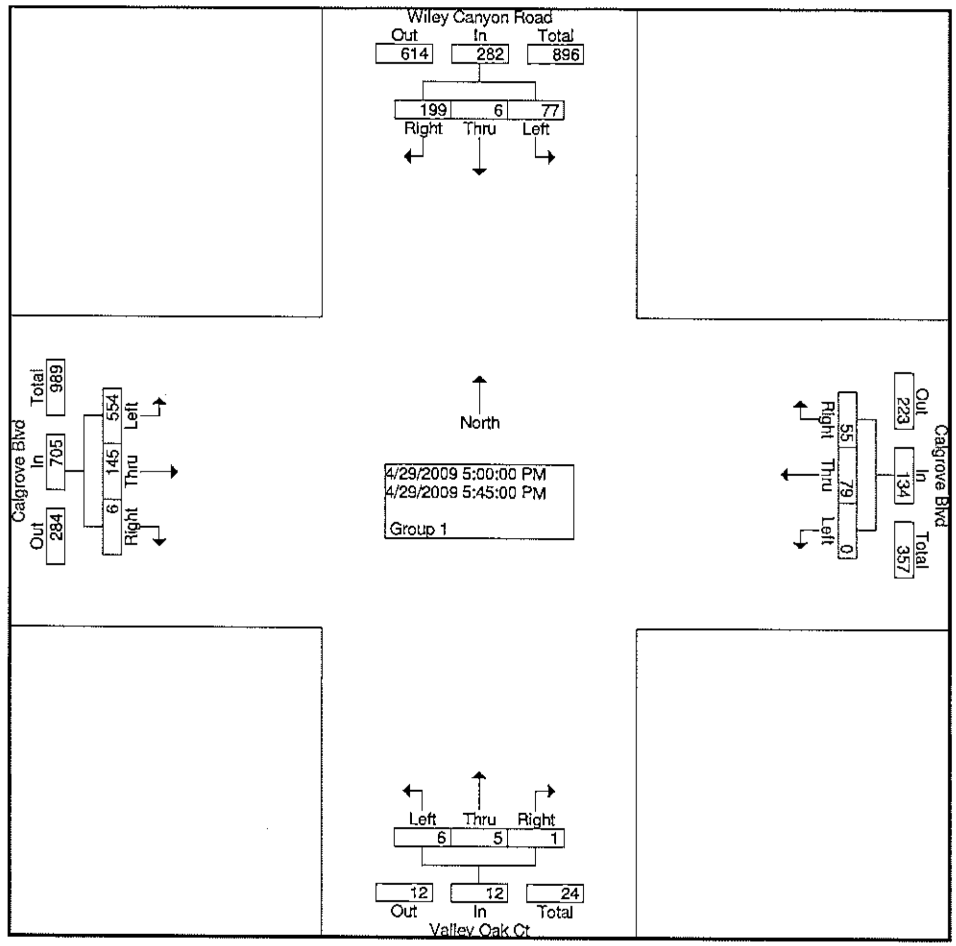
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128011
Site Code : 00128011
Start Date : 4/29/2009
Page No : 2



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Weather : Clear & Dry
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Board #: D1-1431
Loc: Tampa Ave & Sasnon Blvd

File Name : 09128051
Site Code : 00128051
Start Date : 5/5/2009
Page No : 1

Groups Printed- Group 1

	Tampa Avenue Southbound					Sesnon Blvd Westbound					Tampa Avenue Northbound					Sesnon Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
16:00	0	0	1	0	1	12	23	0	0	35	21	1	14	1	36	0	16	26	0	42	1	114	115
16:15	0	0	0	0	0	4	19	0	0	23	22	0	15	1	37	0	21	14	0	35	1	95	96
16:30	0	0	0	0	0	12	24	0	0	36	36	0	11	1	47	0	21	12	0	33	1	116	117
16:45	0	0	1	0	1	14	20	0	0	34	22	3	12	1	37	0	28	27	0	55	1	127	128
Total	0	0	2	0	2	42	86	0	0	128	101	4	52	4	157	0	86	79	0	165	4	452	456
17:00	0	0	1	0	1	11	20	0	0	31	32	0	8	0	40	0	33	27	2	60	2	132	134
17:15	0	0	0	0	0	10	27	0	0	37	39	0	8	0	47	0	22	23	1	45	1	129	130
17:30	0	0	1	0	1	8	22	0	0	30	27	0	12	0	39	0	24	23	0	47	0	117	117
17:45	0	0	0	1	0	9	22	0	0	31	31	0	12	1	43	0	33	18	1	51	3	125	128
Total	0	0	2	1	2	38	91	0	0	129	129	0	40	1	169	0	112	91	4	203	6	503	509
Grand Total	0	0	4	1	4	80	177	0	0	257	230	4	92	5	326	0	198	170	4	368	10	955	965
Apprch %	0.0	0.0	100.0			31.1	68.9	0.0			70.6	1.2	28.2			0.0	53.8	46.2					
Total %	0.0	0.0	0.4		0.4	8.4	18.5	0.0		26.9	24.1	0.4	9.6		34.1	0.0	20.7	17.8		38.5	1.0	99.0	

	Tampa Avenue Southbound				Sesnon Blvd Westbound				Tampa Avenue Northbound				Sesnon Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	16:45																
Volume	0	0	3	3	43	89	0	132	120	3	40	163	0	107	100	207	505
Percent	0.0	0.0	100.0		32.6	67.4	0.0		73.6	1.8	24.5		0.0	51.7	48.3		
17:00 Volume	0	0	1	1	11	20	0	31	32	0	8	40	0	33	27	60	132
Peak Factor																	0.956
High Int.	16:45				17:15				17:15				17:00				
Volume	0	0	1	1	10	27	0	37	39	0	8	47	0	33	27	60	
Peak Factor				0.750				0.892				0.867				0.863	

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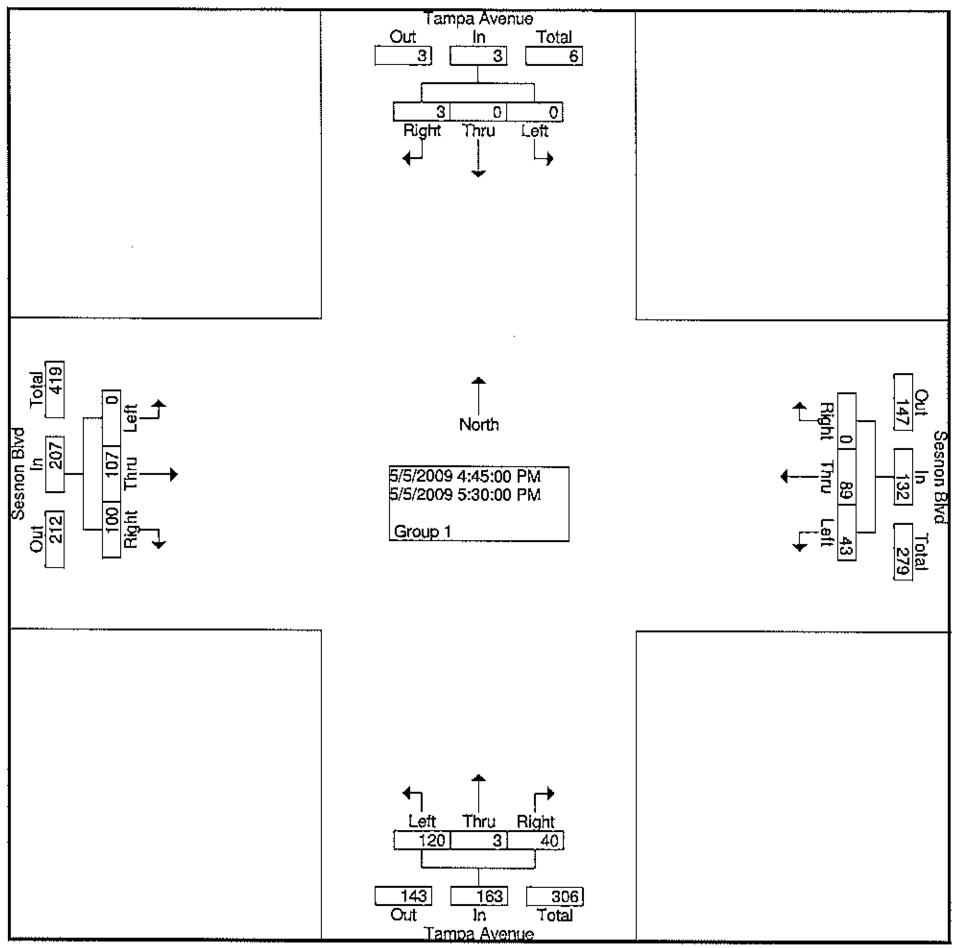
Loc: Tampa Ave & Sasnon Blvd

File Name : 09128051
Site Code : 00128051
Start Date : 5/5/2009
Page No : 2



APPENDIX B

EXISTING CONDITIONS
LEVEL OF SERVICE WORKSHEETS

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 8.3 Worst Case Level Of Service: C[17.8]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	39	1	303	0	107	68	480	257	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	39	1	303	0	107	68	480	257	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	41	1	315	0	111	71	499	267	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	41	1	315	0	111	71	499	267	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1412	1447	267	xxxx	xxxx	xxxxx	182	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	154	133	776	xxxx	xxxx	xxxxx	1405	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	111	86	776	xxxx	xxxx	xxxxx	1405	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.36	0.01	0.41	xxxx	xxxx	xxxx	0.36	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	2.0	xxxx	xxxx	xxxxx	1.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	12.8	xxxxx	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	111	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	1.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	56.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			17.8			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                              Existing Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):      2.3       Worst Case Level Of Service: B[ 14.2]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign         Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include           Include          Include          Include
Lanes:        0  1  0  0  1   0  0  0  0  0   1  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       52    2    81     0    0     0    61   98     0     0  658   121
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    52    2    81     0    0     0    61   98     0     0  658   121
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:     53    2    83     0    0     0    62  100     0     0  672   124
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    53    2    83     0    0     0    62  100     0     0  672   124
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:   3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   959 1020   100  xxxx xxxx xxxxx   796 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   288  238   961  xxxx xxxx xxxxx   835 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     271  221   961  xxxx xxxx xxxxx   835 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:   0.20 0.01  0.09  xxxx xxxx  xxxx  0.07 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx   0.3  xxxx xxxx xxxxx   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx    9.1 xxxxx xxxx xxxxx   9.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     A     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.:   269 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:   0.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  21.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      C    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:        14.2            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:          B                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.727
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	54	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0 2 0 1			1 0 2 0 1			2 0 2 0 1			1 0 2 1 0		
Volume Module:												
Base Vol:	183	184	147	124	378	380	121	617	104	163	831	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	183	184	147	124	378	380	121	617	104	163	831	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	206	207	166	140	426	428	136	696	117	184	937	157
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	206	207	166	140	426	428	136	696	117	184	937	157
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	206	207	166	140	426	428	136	696	117	184	937	157
OvlAdjVol:						360						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.57	0.43
Final Sat.:	1750	3500	1750	1750	3500	1750	3500	3500	1750	1750	4498	752
Capacity Analysis Module:												
Vol/Sat:	0.12	0.06	0.09	0.08	0.12	0.24	0.04	0.20	0.07	0.11	0.21	0.21
OvlAdjV/S:						0.21						
Crit Moves:	****					****		****		****		

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--------------------------------------------------------------------------------
     ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                             Existing Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #400 WILEY CANYON RD.  (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):        3.6       Worst Case Level Of Service: B[ 14.4]
********************************************************************************
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|----------------||----------------||----------------||----------------|
Control:        Stop Sign        Stop Sign        Uncontrolled      Uncontrolled
Rights:           Include          Ignore           Include           Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  0  1    1  0  1  0  1
------------|----------------||----------------||----------------||----------------|
Volume Module:
Base Vol:      11    7     1    34    1   633   117   41     9     4  182    87
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11    7     1    34    1   633   117   41     9     4  182    87
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.91 0.91  0.91  0.91 0.91  0.00  0.91 0.91  0.91  0.91 0.91  0.91
PHF Volume:    12    8     1    37    1     0   129   45    10     4  200    96
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   12    8     1    37    1     0   129   45    10     4  200    96
------------|----------------||----------------||----------------||----------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|----------------||----------------||----------------||----------------|
Capacity Module:
Cnflict Vol:  560  607    45   521  521   200   296 xxxx xxxxx    55 xxxx xxxxx
Potent Cap.:  442  413  1030   469  462   846  1277 xxxx xxxxx  1563 xxxx xxxxx
Move Cap.:    406  371  1030   425  415   846  1277 xxxx xxxxx  1563 xxxx xxxxx
Volume/Cap:  0.03 0.02  0.00  0.09 0.00  0.00  0.10 xxxx  xxxx  0.00 xxxx  xxxx
------------|----------------||----------------||----------------||----------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.3 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.1 xxxx xxxxx   7.3 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  405 xxxxx   425 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.2 xxxxx   0.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 14.4 xxxxx  14.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     B    *     *     *    *     *     *    *     *
ApproachDel:      14.4              14.3             xxxxxx            xxxxxx
ApproachLOS:        B                 B                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                           Existing Conditions
                              AM Peak Hour
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.538
Loss Time (sec):        0                Average Delay (sec/veh):        13.0
Optimal Cycle:          0                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  0  1  0   0  1  0  1  0   0  1  0  1  0   0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     128    1    33    0    0     0    0  249   201   79  140     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  128    1    33    0    0     0    0  249   201   79  140     0
Added Vol:      0    0     0    0    0     0    0    0     0    0    0     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:  128    1    33    0    0     0    0  249   201   79  140     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.67 0.67  0.67 0.67 0.67  0.67 0.67 0.67  0.67 0.67 0.67  0.67
PHF Volume:   190    1    49    0    0     0    0  371   299  118  208     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  190    1    49    0    0     0    0  371   299  118  208     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  190    1    49    0    0     0    0  371   299  118  208     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       1.00 0.59  0.41 0.00 2.00  0.00 0.00 1.11  0.89 0.72 1.28  0.00
Final Sat.:   478  314   216    0  910     0    0  689   616  391  725     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.40 0.00  0.23 xxxx 0.00  xxxx xxxx 0.54  0.49 0.30 0.29  xxxx
Crit Moves:  ****                 ****              ****       ****
Delay/Veh:   14.3  9.7   9.7  0.0  0.0   0.0  0.0 14.6  12.4 11.8 11.2   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  14.3  9.7   9.7  0.0  0.0   0.0  0.0 14.6  12.4 11.8 11.2   0.0
LOS by Move:    B    A     A    *    *     *    *    B     B    B    B     *
ApproachDel:       13.3          xxxxxx            13.6             11.4
Delay Adj:         1.00           xxxxx            1.00             1.00
ApprAdjDel:        13.3          xxxxxx            13.6             11.4
LOS by Appr:          B               *               B                B
AllWayAvgQ:   0.6  0.1   0.1  0.0  0.0   0.0  1.1  0.9   0.9  0.4  0.4   0.4
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                            Existing Conditions
                               PM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):      7.9      Worst Case Level Of Service: F[ 59.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  1  0  0  1    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    83    0    84     0  888    63   111  199     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    83    0    84     0  888    63   111  199     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.89 0.89  0.89  0.89 0.89  0.89  0.89 0.89  0.89  0.89 0.89  0.89
PHF Volume:     0    0     0    93    0    95     0 1000    71   125  224     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    93    0    95     0 1000    71   125  224     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1510 1545   224  xxxx xxxx xxxxx  1071 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   134  116   820  xxxx xxxx xxxxx   659 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   114   94   820  xxxx xxxx xxxxx   659 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.82 0.00  0.12  xxxx xxxx  xxxx  0.19 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.4  xxxx xxxx xxxxx   0.7 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  10.0 xxxxx xxxx xxxxx  11.7 xxxx xxxxx
LOS by Move:    *    *     *     *    *     A     *    *     *     B    *     *
Movement:     LT - LTR - RT   LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx   114 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   4.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx 110.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     F    *     *     *    *     *     *    *     *
ApproachDel:      xxxxxx             59.9             xxxxxx           xxxxxx
ApproachLOS:        *                  F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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---------------------------------------------------------------------------------
    ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                         Existing Conditions
                            PM Peak Hour
---------------------------------------------------------------------------------
                  Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)
*********************************************************************************
Average Delay (sec/veh):     21.7       Worst Case Level Of Service: F[ 87.2]
*********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|----------------||----------------||----------------||----------------|
Control:        Stop Sign        Stop Sign        Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  0  0  0    1  0  1  0  0    0  0  1  0  1
------------|----------------||----------------||----------------||----------------|
Volume Module:
Base Vol:      67    2   270     0    0     0   467  497     0     0  194    74
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   67    2   270     0    0     0   467  497     0     0  194    74
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.91 0.91  0.91  0.91 0.91  0.91  0.91 0.91  0.91  0.91 0.91  0.91
PHF Volume:    74    2   298     0    0     0   516  549     0     0  214    82
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   74    2   298     0    0     0   516  549     0     0  214    82
------------|----------------||----------------||----------------||----------------|
Critical Gap Module:
Critical Gp:  6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|----------------||----------------||----------------||----------------|
Capacity Module:
Cnflict Vol: 1836 1877   549  xxxx xxxx xxxxx   296 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   84   72   539  xxxx xxxx xxxxx  1277 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     58   43   539  xxxx xxxx xxxxx  1277 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  1.28 0.05  0.55  xxxx xxxx  xxxx  0.40 xxxx  xxxx  xxxx xxxx  xxxx
------------|----------------||----------------||----------------||----------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx   3.3  xxxx xxxx xxxxx   2.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx  19.6 xxxxx xxxx xxxxx   9.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     C     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:   57 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  6.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:351.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     F    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       87.2            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         F                *                *                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
```

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--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                              Existing Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
        ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
********************************************************************************
Intersection #300 WILEY CANYON RD.  (NS)/ LYONS AVENUE (EW)
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):          0.720
Loss Time (sec):       10               Average Delay (sec/veh):       xxxxxx
Optimal Cycle:         53               Level Of Service:                   C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include            Ovl            Include          Include
Min. Green:     0     0     0    0    0     0    0    0     0    0    0     0
Y+R:          4.0   4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  2  0  1    1  0  2  0  1    2  0  2  0  1    1  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     167   355   224  160  256   232  345  967   133  135  782   111
Growth Adj:  1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  167   355   224  160  256   232  345  967   133  135  782   111
Added Vol:      0     0     0    0    0     0    0    0     0    0    0     0
PasserByVol:    0     0     0    0    0     0    0    0     0    0    0     0
Initial Fut:  167   355   224  160  256   232  345  967   133  135  782   111
User Adj:    1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92  0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:   181   384   242  173  277   251  373 1047   144  146  846   120
Reduct Vol:     0     0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  181   384   242  173  277   251  373 1047   144  146  846   120
PCE Adj:     1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  181   384   242  173  277   251  373 1047   144  146  846   120
OvlAdjVol:                                 64
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1750  1750  1750 1750 1750  1750 1750 1750  1750 1750 1750  1750
Adjustment:  1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       1.00  2.00  1.00 1.00 2.00  1.00 2.00 2.00  1.00 1.00 2.63  0.37
Final Sat.:  1750  3500  1750 1750 3500  1750 3500 3500  1750 1750 4597   653
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10  0.11  0.14 0.10 0.08  0.14 0.11 0.30  0.08 0.08 0.18  0.18
OvlAdjV/S:                               0.04
Crit Moves:              **** ****                  ****      ****
********************************************************************************
```

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--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                            Existing Conditions
                               PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #400 WILEY CANYON RD.  (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):     40.1       Worst Case Level Of Service: F[378.4]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|----------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Ignore           Include          Include
Lanes:        0  0  1! 0  0   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|----------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       6    5     1    77    6    199   554  145     6     0   79    55
Growth Adj:  1.00 1.00  1.00  1.00 1.00   1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    6    5     1    77    6    199   554  145     6     0   79    55
User Adj:    1.00 1.00  1.00  1.00 1.00   0.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.89 0.89  0.89  0.89 0.89   0.00  0.89 0.89  0.89  0.89 0.89  0.89
PHF Volume:     7    6     1    86    7      0   620  162     7     0   88    62
Reduct Vol:     0    0     0     0    0      0     0    0     0     0    0     0
FinalVolume:    7    6     1    86    7      0   620  162     7     0   88    62
------------|----------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5    6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0    3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|----------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1524 1551   162  1497 1497     88   150 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   98  115   888   102  124    975  1444 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     61   65   888    64   71    975  1444 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.11 0.09  0.00  1.35 0.09   0.00  0.43 xxxx  xxxx  xxxx xxxx  xxxx
------------|----------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx    2.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx    9.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *      *     A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx   68 xxxxx    64 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.7 xxxxx   8.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 70.6 xxxxx 378.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    F     *     F    *      *     *    *     *     *    *     *
ApproachDel:        70.6            378.4            xxxxxx           xxxxxx
ApproachLOS:          F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
-------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                             Existing Conditions
                                PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
*******************************************************************************
Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)
*******************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):        0.212
Loss Time (sec):        0                 Average Delay (sec/veh):        8.8
Optimal Cycle:          0                 Level Of Service:                 A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120     3    40     0     0     3     0   107   100    43    89     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  120     3    40     0     0     3     0   107   100    43    89     0
Added Vol:      0     0     0     0     0     0     0     0     0     0     0     0
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:  120     3    40     0     0     3     0   107   100    43    89     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96
PHF Volume:   126     3    42     0     0     3     0   112   105    45    93     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  126     3    42     0     0     3     0   112   105    45    93     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  126     3    42     0     0     3     0   112   105    45    93     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       1.00  0.51  0.49  0.00  1.00  1.00  0.00  1.03  0.97  0.65  1.35  0.00
Final Sat.:   593   350   337     0   612   694     0   711   759   415   897     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21  0.01  0.12  xxxx  0.00  0.00  xxxx  0.16  0.14  0.11  0.10  xxxx
Crit Moves:  ****                          ****        ****        ****
Delay/Veh:   10.0   8.0   8.0   0.0   0.0   7.6   0.0   8.7   7.8   8.8   8.5   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  10.0   8.0   8.0   0.0   0.0   7.6   0.0   8.7   7.8   8.8   8.5   0.0
LOS by Move:    B     A     A     *     *     A     *     A     A     A     A     *
ApproachDel:        9.5               7.6               8.3               8.6
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:         9.5               7.6               8.3               8.6
LOS by Appr:          A                 A                 A                 A
AllWayAvgQ:   0.2   0.1   0.1   0.0   0.0   0.0   0.2   0.1   0.1   0.1   0.1   0.1
*******************************************************************************
Note: Queue reported is the number of cars per lane.
```

APPENDIX C

TRAFFIC SIGNAL WARRANTS

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **343**

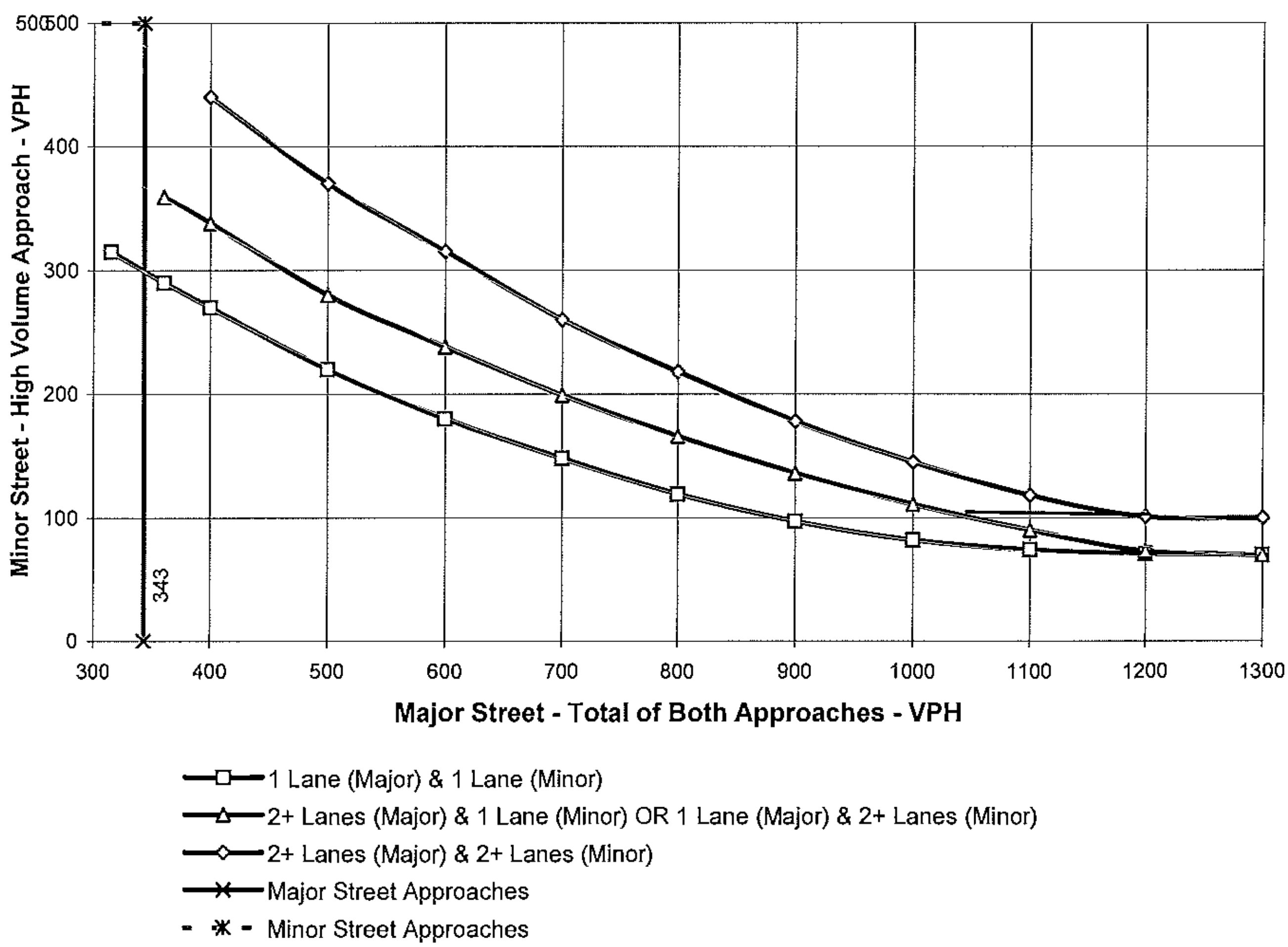
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 SB Ramps**

High Volume Approach (VPH) = **912**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

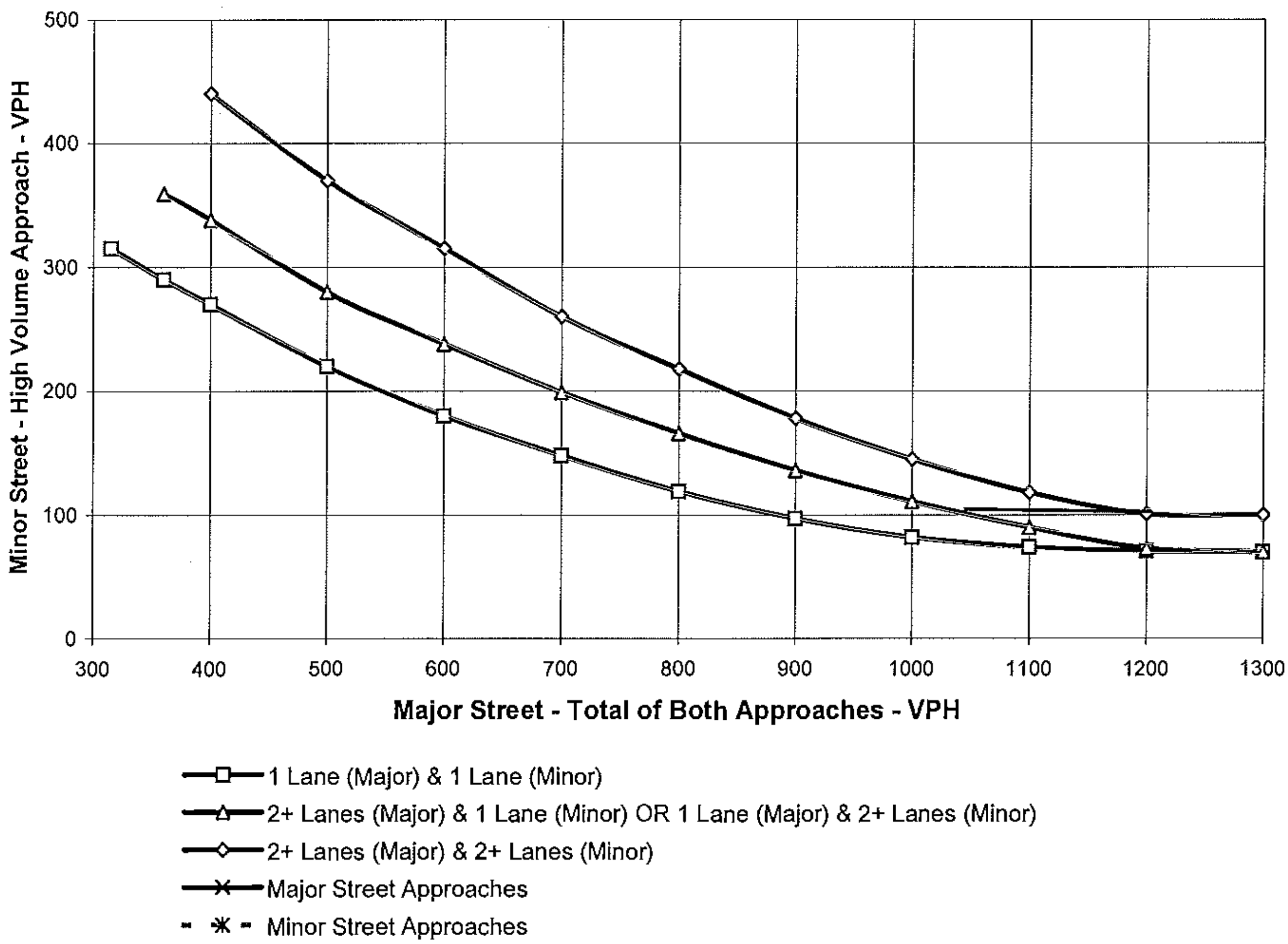
PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **Calgrove** — Total of Both Approaches (VPH) = **167**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 SB Ramps** — High Volume Approach (VPH) = **1261**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **135**

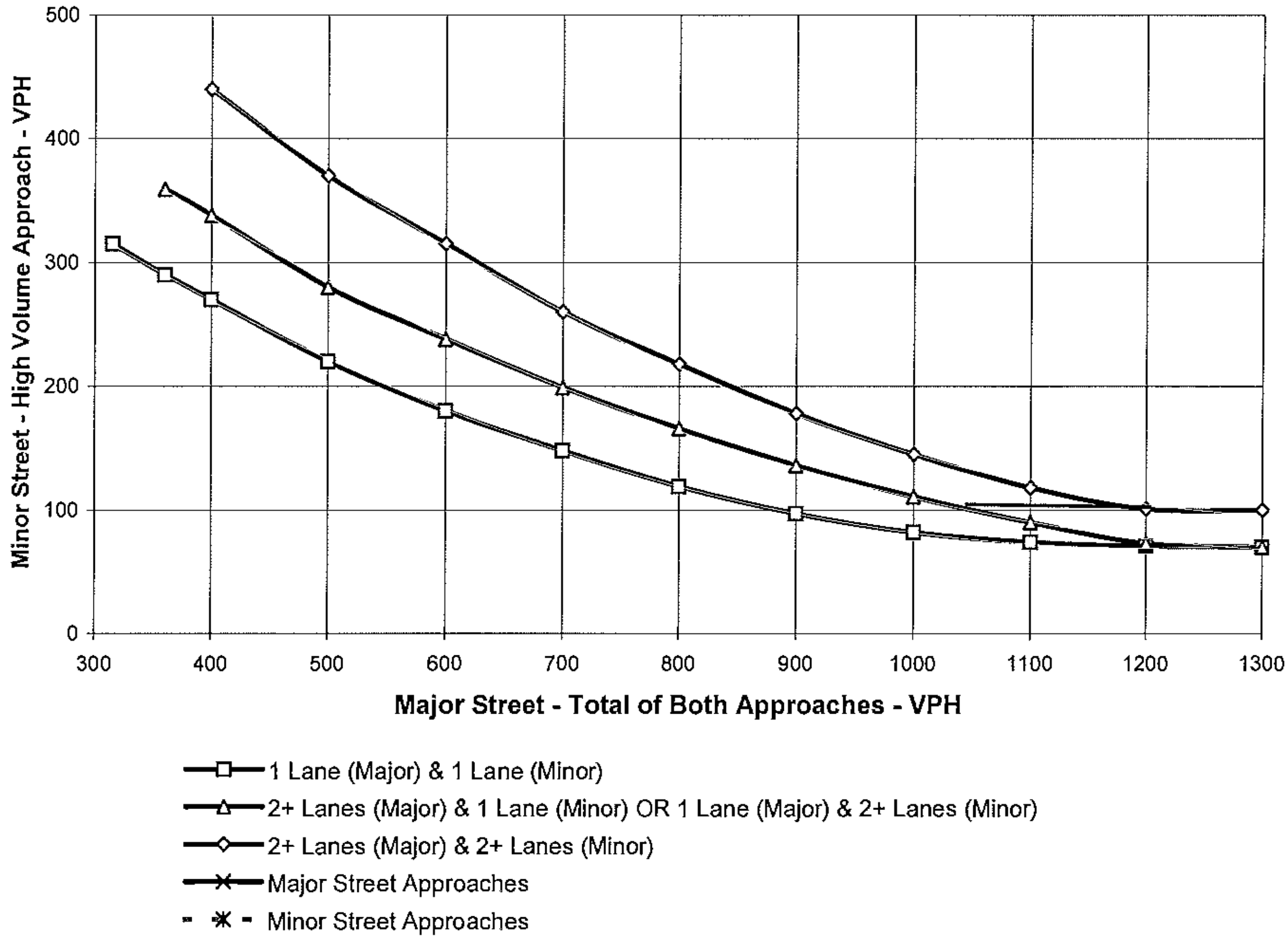
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 NB Ramps**

High Volume Approach (VPH) = **938**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

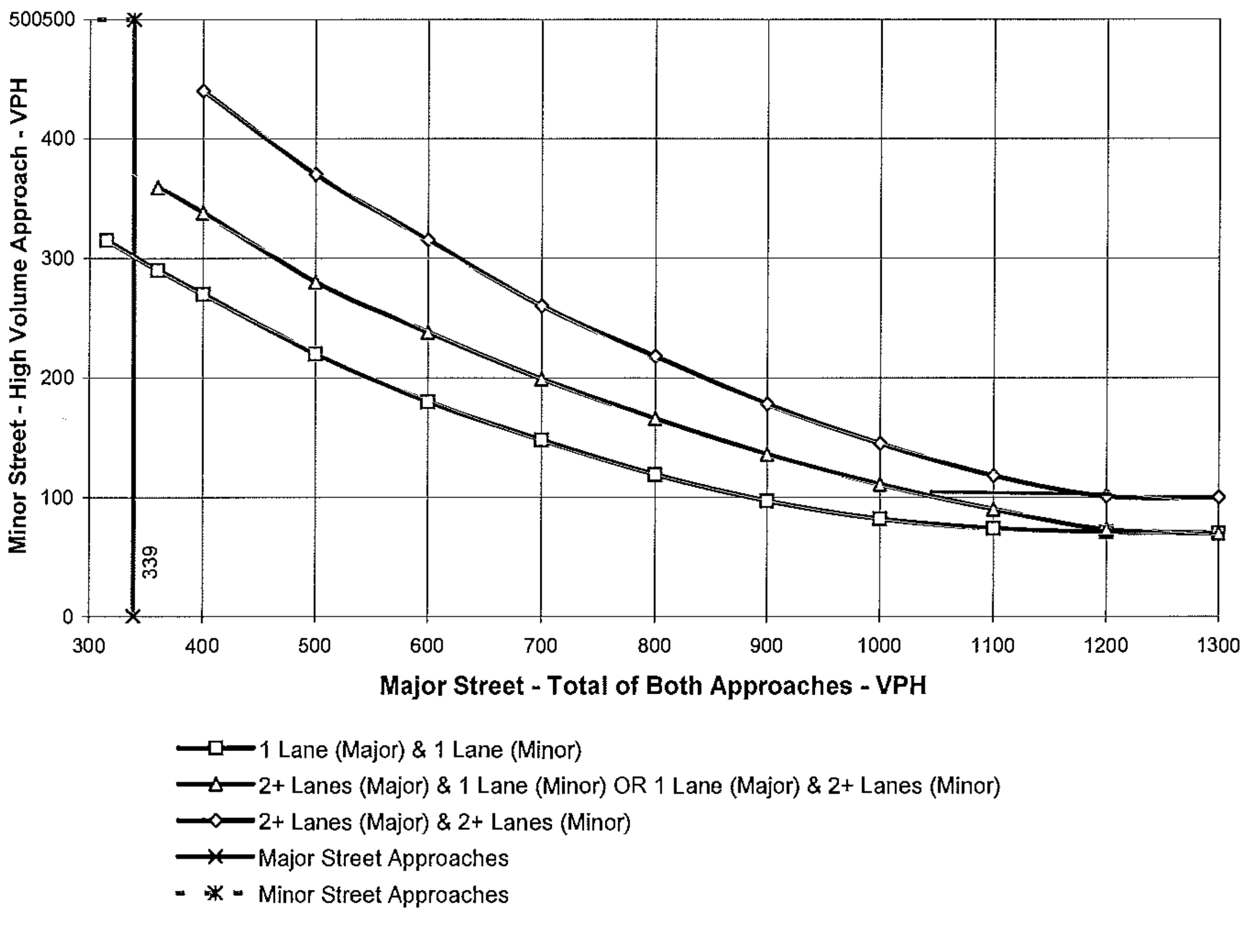
Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **339**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 NB Ramps**

High Volume Approach (VPH) = **1232**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **440**

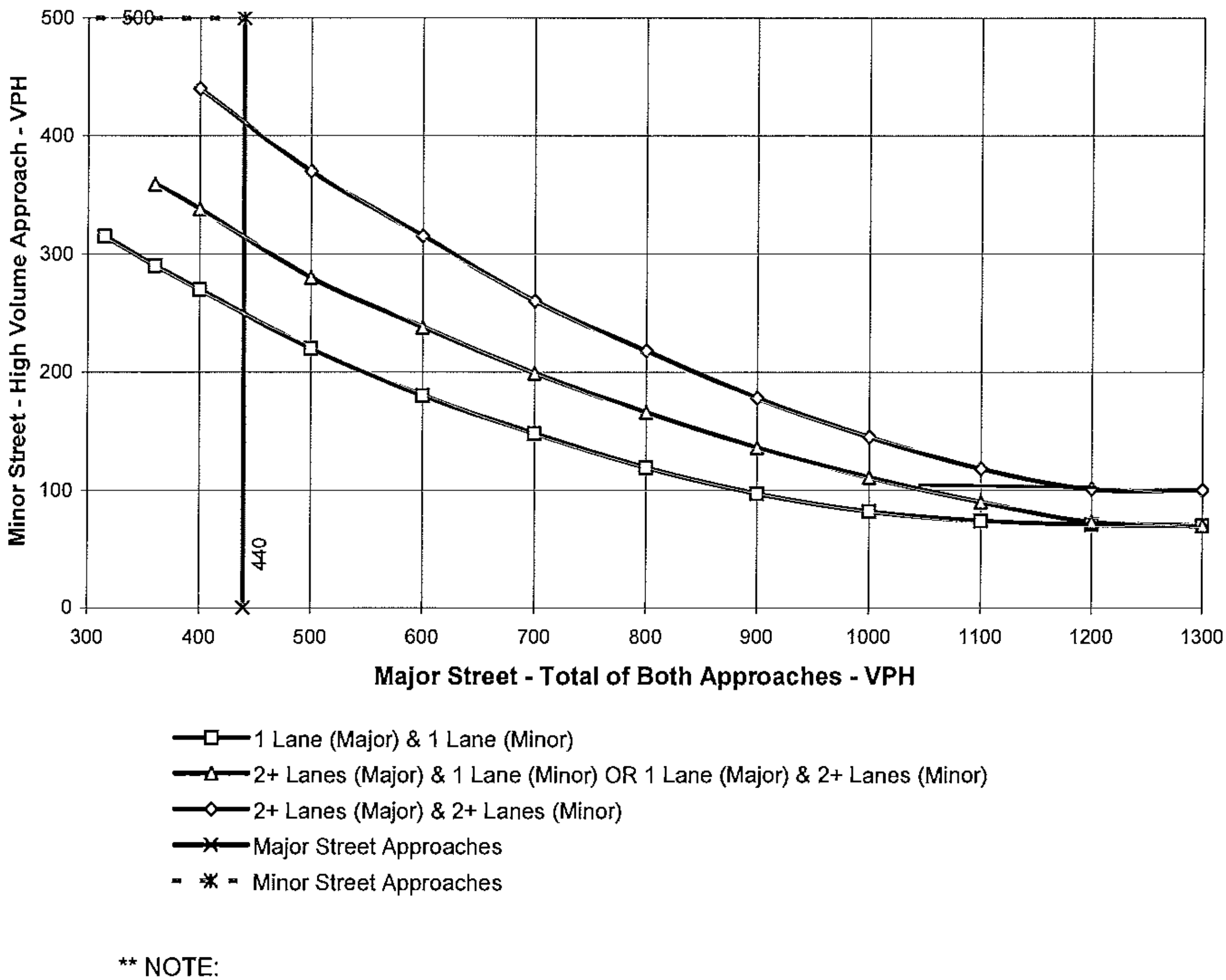
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Wiley**

High Volume Approach (VPH) = **668**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **839**

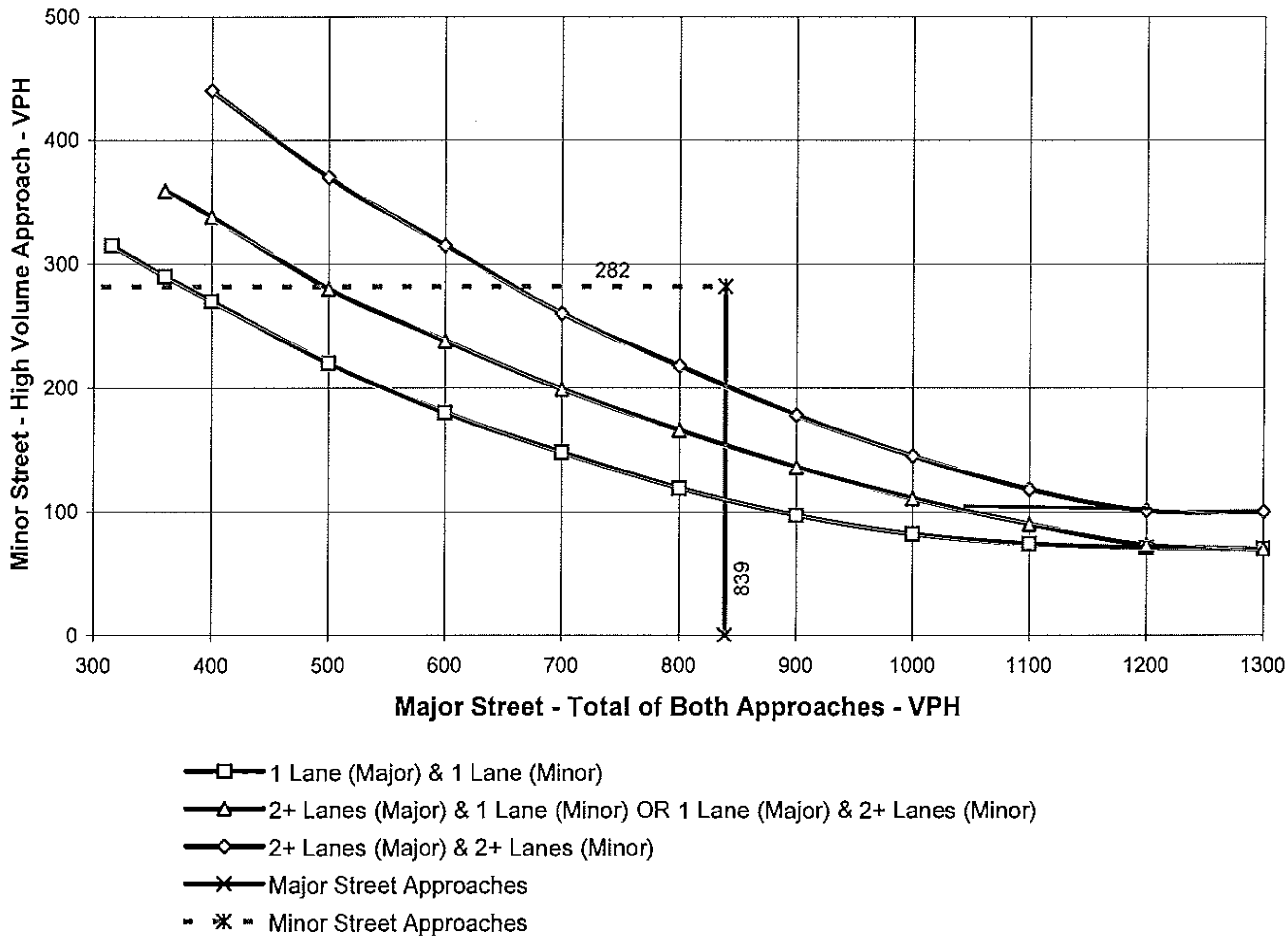
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Wiley**

High Volume Approach (VPH) = **282**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

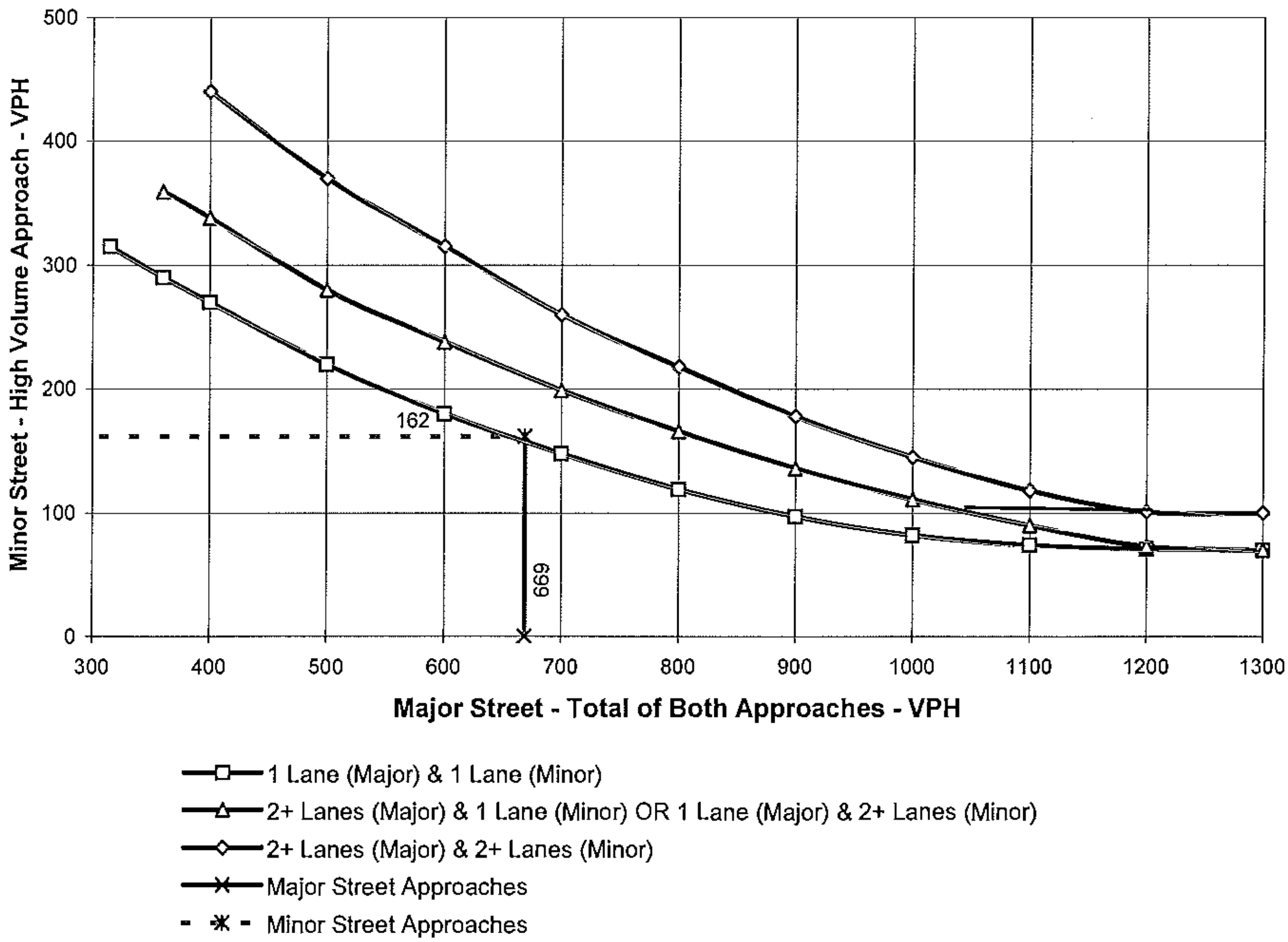
Major Street Name = **Sesnon**

Total of Both Approaches (VPH) = **669**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Tampa**

High Volume Approach (VPH) = **162**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

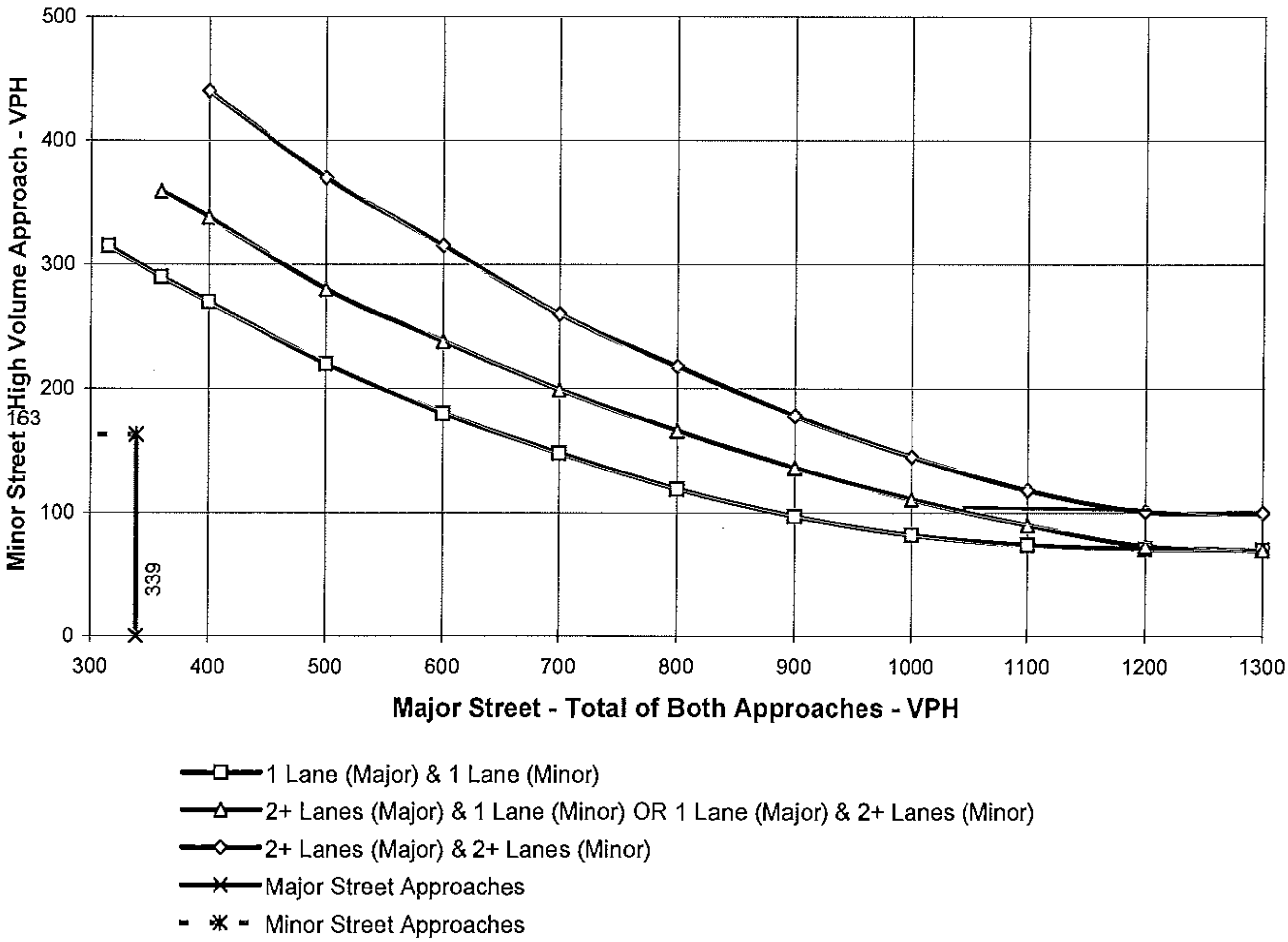
Major Street Name = **Sesnon**

Total of Both Approaches (VPH) = **339**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Tampa**

High Volume Approach (VPH) = **163**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED

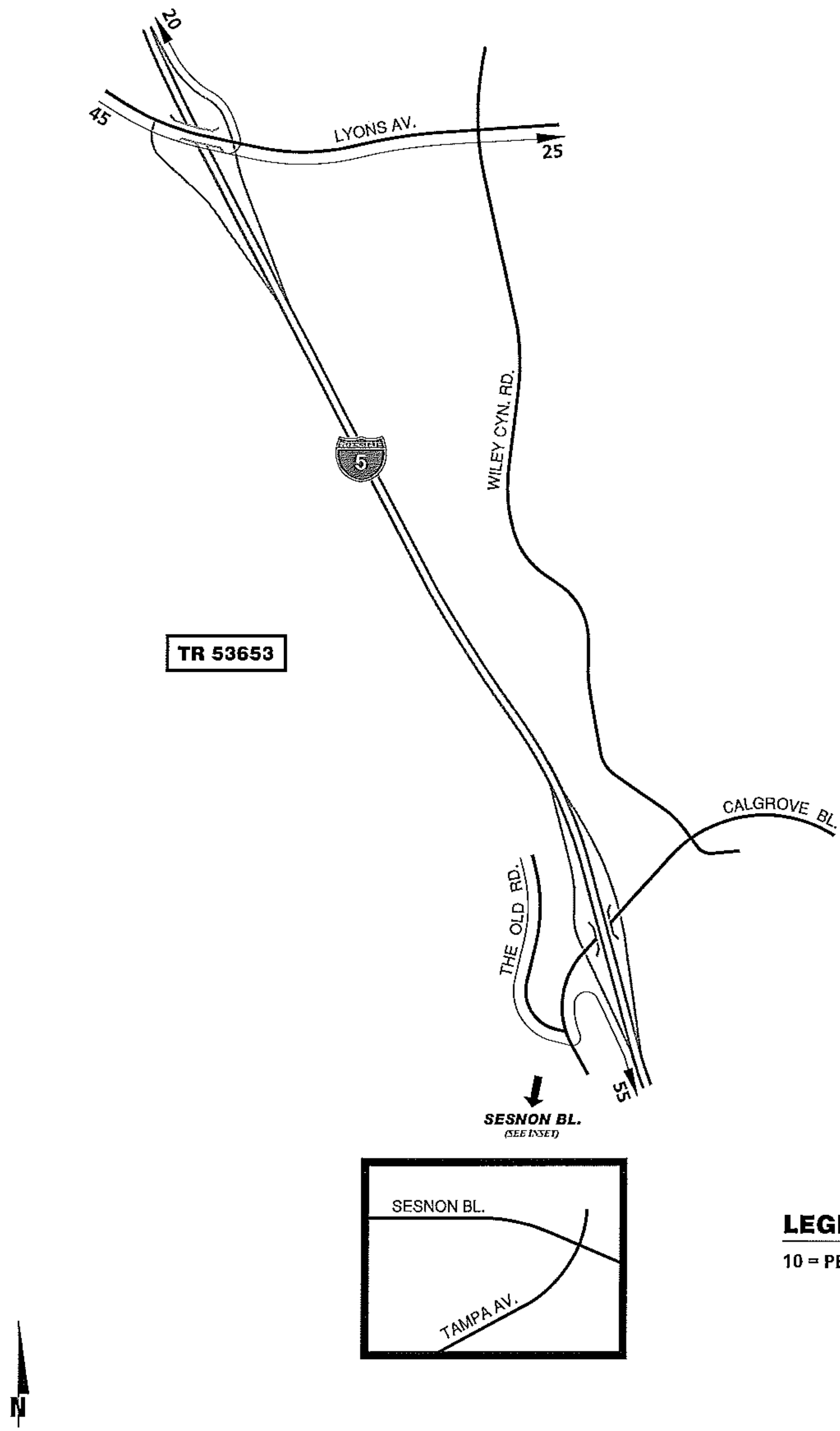


** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

APPENDIX D

CUMULATIVE TRAFFIC

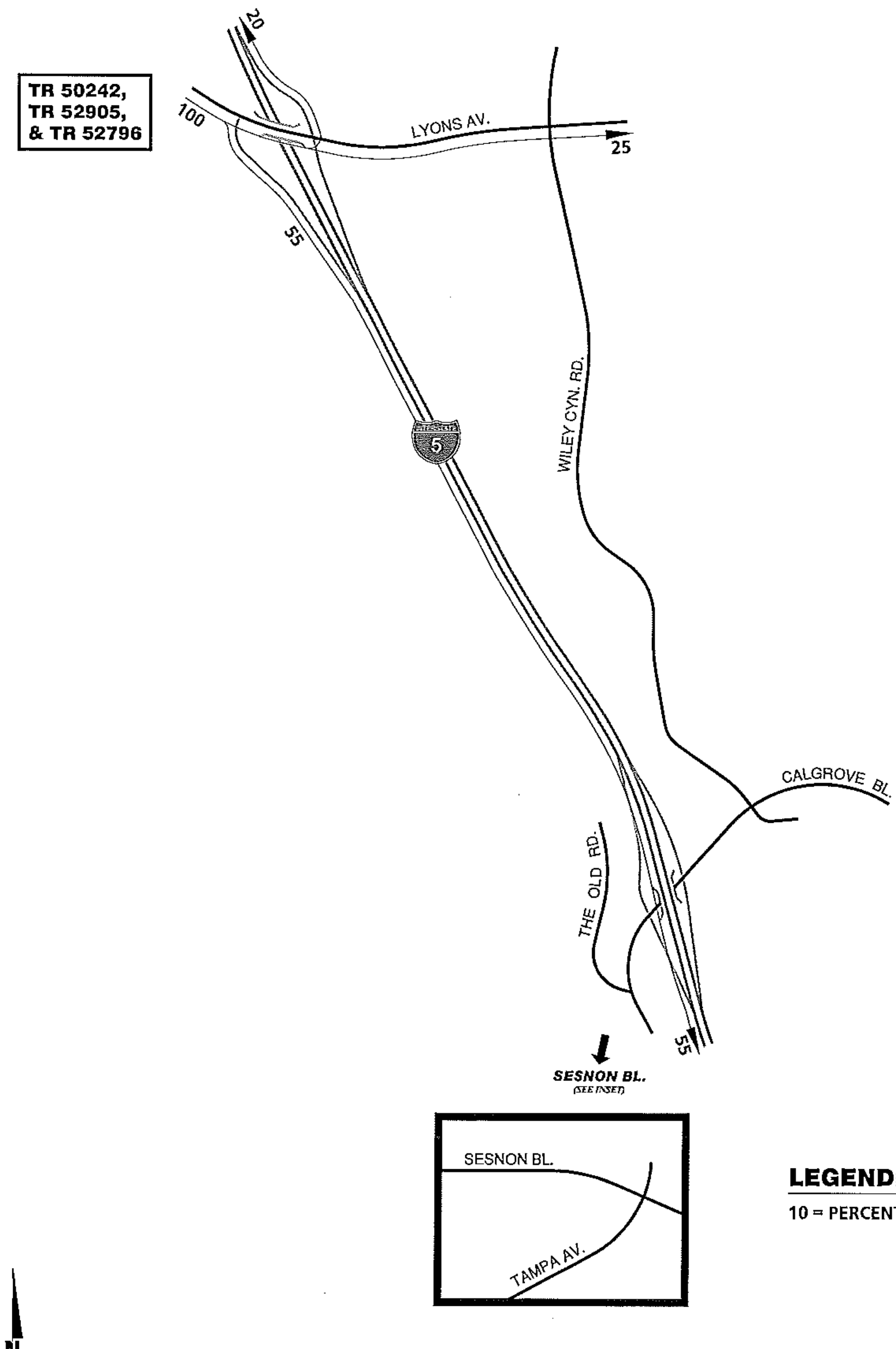
TR 53653
TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

TR 50242, TR 52905, AND TR 52796
TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

APPENDIX E

EXISTING PLUS AMBIENT PLUS CUMULATIVE
LEVEL OF SERVICE WORKSHEETS

```
--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
              Existing + Ambient + Cumulative Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):        8.6       Worst Case Level Of Service: C[ 20.3]
********************************************************************************
Approach:      North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign         Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include           Include           Include           Include
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     39    1    303     0  107    68    480  257     0
Growth Adj:  1.03 1.03  1.03   1.03 1.03   1.03  1.03 1.03  1.03   1.03 1.03  1.03
Initial Bse:    0    0     0     40    1    312     0  110    70    494  265     0
Added Vol:      0    0     0      0    0      0     0    0    57      0   19     0
PasserByVol:    0    0     0      0    0      0     0    0     0      0    0     0
Initial Fut:    0    0     0     40    1    312     0  110   127    494  284     0
User Adj:    1.00 1.00  1.00   1.00 1.00   1.00  1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:     0.96 0.96  0.96   0.96 0.96   0.96  0.96 0.96  0.96   0.96 0.96  0.96
PHF Volume:     0    0     0     42    1    324     0  115   132    514  295     0
Reduct Vol:     0    0     0      0    0      0     0    0     0      0    0     0
FinalVolume:    0    0     0     42    1    324     0  115   132    514  295     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx    6.4  6.5    6.2 xxxxx xxxx xxxxx    4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx    3.5  4.0    3.3 xxxxx xxxx xxxxx    2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   1503 1569    295  xxxx xxxx xxxxx    247 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    135  112    749  xxxx xxxx xxxxx   1331 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx     95   69    749  xxxx xxxx xxxxx   1331 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx   0.44 0.02   0.43  xxxx xxxx  xxxx   0.39 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   xxxx xxxx    2.2  xxxx xxxx xxxxx    1.9 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  xxxxx xxxx   13.4 xxxxx xxxx xxxxx    9.4 xxxx xxxxx
LOS by Move:    *    *     *      *    *      B     *    *     *      A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx     94 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx    1.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   72.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *      F    *      *     *    *     *      *    *     *
ApproachDel:      xxxxxx               20.3            xxxxxx            xxxxxx
ApproachLOS:        *                    C                *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
    ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
                Existing + Ambient + Cumulative Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):       2.9       Worst Case Level Of Service: C[ 16.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:          Include          Include          Include           Include
Lanes:        0  1  0  0  1   0  0  0  0  0   1  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      52    2    81     0    0     0    61   98     0     0  658   121
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:   54    2    83     0    0     0    63  101     0     0  678   125
Added Vol:     19    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   73    2    83     0    0     0    63  101     0     0  678   125
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:    74    2    85     0    0     0    64  103     0     0  692   127
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   74    2    85     0    0     0    64  103     0     0  692   127
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  987 1051   103  xxxx xxxx xxxxx   820 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  277  229   957  xxxx xxxx xxxxx   818 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    260  211   957  xxxx xxxx xxxxx   818 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.29 0.01  0.09  xxxx xxxx  xxxx  0.08 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2WayFT95thQ:  xxxx xxxx   0.3  xxxx xxxx xxxxx   0.3 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx   9.1 xxxxx xxxx xxxxx   9.8 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     A     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.:  258 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  1.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 24.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     C    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       16.5            xxxxxx            xxxxxx            xxxxxx
ApproachLOS:         C                *                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
              Existing + Ambient + Cumulative Project Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
     ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
********************************************************************************
Intersection #300 WILEY CANYON RD.  (NS)/ LYONS AVENUE (EW)
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.761
Loss Time (sec):       10 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:         59               Level Of Service:                  C
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include           Ovl              Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:         1  0  2  0  1   1  0  2  0  1   2  0  2  0  1   1  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      183  184   147   124  378   380   121  617   104   163  831   139
Growth Adj:   1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:   188  190   151   128  389   391   125  636   107   168  856   143
Added Vol:       0    0     0     0    0     0     0   47     0     0   16     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   188  190   151   128  389   391   125  683   107   168  872   143
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.89 0.89  0.89  0.89 0.89  0.89  0.89 0.89  0.89  0.89 0.89  0.89
PHF Volume:    213  214   171   144  439   441   141  769   121   189  983   161
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   213  214   171   144  439   441   141  769   121   189  983   161
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   213  214   171   144  439   441   141  769   121   189  983   161
OvlAdjVol:                                 371
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:     1750 1750  1750  1750 1750  1750  1750 1750  1750  1750 1750  1750
Adjustment:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:        1.00 2.00  1.00  1.00 2.00  1.00  2.00 2.00  1.00  1.00 2.58  0.42
Final Sat.:   1750 3500  1750  1750 3500  1750  3500 3500  1750  1750 4510   740
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.12 0.06  0.10  0.08 0.13  0.25  0.04 0.22  0.07  0.11 0.22  0.22
OvlAdjV/S:                                 0.21
Crit Moves:   ****                         ****       ****        ****
********************************************************************************
```

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[14.7]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Ignore			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			1 0 1 0 1			1 0 1 0 1		
Volume Module:												
Base Vol:	11	7	1	34	1	633	117	41	9	4	182	87
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	11	7	1	35	1	652	121	42	9	4	187	90
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	7	1	35	1	652	121	42	9	4	187	90
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.00	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	12	8	1	39	1	0	133	46	10	5	206	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	12	8	1	39	1	0	133	46	10	5	206	99
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	577	625	46	537	537	206	305	xxxx	xxxxx	57	xxxx	xxxxx
Potent Cap.:	431	404	1029	458	453	839	1267	xxxx	xxxxx	1561	xxxx	xxxxx
Move Cap.:	395	360	1029	413	405	839	1267	xxxx	xxxxx	1561	xxxx	xxxxx
Volume/Cap:	0.03	0.02	0.00	0.09	0.00	0.00	0.10	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	7.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	394	xxxxx	413	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.7	xxxxx	14.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	B	*	*	*	*	*	*	*	*
ApproachDel:	14.7			14.6			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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------------------------------------------------------------------------------------
     ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
             Existing + Ambient + Cumulative Project Conditions
                                 AM Peak Hour
------------------------------------------------------------------------------------

                       Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Future Volume Alternative)
***********************************************************************************
Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)
***********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.559
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        13.4
Optimal Cycle:          0               Level Of Service:                  B
***********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  1  0   0  1  0  1  0   0  1  0  1  0   0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     128     1    33    0     0     0    0   249   201    79   140     0
Growth Adj:  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03
Initial Bse:  132     1    34    0     0     0    0   256   207    81   144     0
Added Vol:      0     0     0    0     0     0    0     0     0     0     0     0
PasserByVol:    0     0     0    0     0     0    0     0     0     0     0     0
Initial Fut:  132     1    34    0     0     0    0   256   207    81   144     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67
PHF Volume:   196     2    51    0     0     0    0   382   308   121   215     0
Reduct Vol:     0     0     0    0     0     0    0     0     0     0     0     0
Reduced Vol:  196     2    51    0     0     0    0   382   308   121   215     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  196     2    51    0     0     0    0   382   308   121   215     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       1.00  0.59  0.41  0.00  2.00  0.00  0.00  1.11  0.89  0.72  1.28  0.00
Final Sat.:   475   312   214    0   899     0    0   683   610   388   717     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.41  0.00  0.24  xxxx  0.00  xxxx  xxxx  0.56  0.51  0.31  0.30  xxxx
Crit Moves:  ****                    ****              ****        ****
Delay/Veh:   14.6   9.8   9.8   0.0   0.0   0.0   0.0  15.3  12.9  12.0  11.5   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  14.6   9.8   9.8   0.0   0.0   0.0   0.0  15.3  12.9  12.0  11.5   0.0
LOS by Move:    B     A     A    *     *     *     *     C     B     B     B     *
ApproachDel:       13.6            xxxxxx             14.2              11.7
Delay Adj:         1.00             xxxxx             1.00              1.00
ApprAdjDel:        13.6            xxxxxx             14.2              11.7
LOS by Appr:          B                 *                B                 B
AllWayAvgQ:    0.6   0.1   0.1   0.0   0.0   0.0   1.2   0.9   0.9   0.4   0.4   0.4
***********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
              Existing + Ambient + Cumulative Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):     11.8       Worst Case Level Of Service: F[ 99.4]
********************************************************************************
Approach:      North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|-----------------||----------------||----------------||----------------|
Control:        Stop Sign         Stop Sign        Uncontrolled      Uncontrolled
Rights:           Include           Include           Include           Include
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    1  0  1  0  0
------------|----------------||----------------||----------------||---------------|
Volume Module:
Base Vol:       0    0     0     83    0    84     0  888    63    111  199     0
Growth Adj:  1.03 1.03  1.03   1.03 1.03  1.03  1.03 1.03  1.03   1.03 1.03  1.03
Initial Bse:    0    0     0     85    0    87     0  915    65    114  205     0
Added Vol:      0    0     0      0    0     0     0    0    38      0   65     0
PasserByVol:    0    0     0      0    0     0     0    0     0      0    0     0
Initial Fut:    0    0     0     85    0    87     0  915   103    114  270     0
User Adj:    1.00 1.00  1.00   1.00 1.00  1.00  1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:     0.89 0.89  0.89   0.89 0.89  0.89  0.89 0.89  0.89   0.89 0.89  0.89
PHF Volume:     0    0     0     96    0    97     0 1030   116    129  304     0
Reduct Vol:     0    0     0      0    0     0     0    0     0      0    0     0
FinalVolume:    0    0     0     96    0    97     0 1030   116    129  304     0
------------|----------------||----------------||----------------||----------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx    6.4  6.5   6.2 xxxxx xxxx xxxxx    4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx    3.5  4.0   3.3 xxxxx xxxx xxxxx    2.2 xxxx xxxxx
------------|----------------||----------------||----------------||----------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   1649 1707   304  xxxx xxxx xxxxx   1146 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    110   92   740  xxxx xxxx xxxxx    617 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx     92   73   740  xxxx xxxx xxxxx    617 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx   1.04 0.00  0.13  xxxx xxxx  xxxx   0.21 xxxx  xxxx
------------|----------------||----------------||----------------||----------------|
Level Of Service Module:
2WayS95thQ:  xxxx xxxx xxxxx   xxxx xxxx   0.5  xxxx xxxx xxxxx    0.8 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  xxxxx xxxx  10.6 xxxxx xxxx xxxxx   12.4 xxxx xxxxx
LOS by Move:    *    *     *      *    *     B     *    *     *      B    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx     92 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx    6.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx  189.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *      F    *     *     *    *     *      *    *     *
ApproachDel:      xxxxxx             99.4              xxxxxx            xxxxxx
ApproachLOS:        *                  F                  *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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-------------------------------------------------------------------------------
    ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
            Existing + Ambient + Cumulative Project Conditions
                              PM Peak Hour
-------------------------------------------------------------------------------

                   Level Of Service Computation Report
         2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)
*******************************************************************************
Average Delay (sec/veh):     88.5       Worst Case Level Of Service: F[348.4]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|----------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        0  1  0  0  1   0  0  0  0  0   1  0  1  0  0   0  0  1  0  1
------------|----------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      67    2   270     0    0     0   467  497     0     0  194    74
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:   69    2   278     0    0     0   481  512     0     0  200    76
Added Vol:     65    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  134    2   278     0    0     0   481  512     0     0  200    76
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.91 0.91  0.91  0.91 0.91  0.91  0.91 0.91  0.91  0.91 0.91  0.91
PHF Volume:   148    2   307     0    0     0   532  566     0     0  221    84
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  148    2   307     0    0     0   532  566     0     0  221    84
------------|----------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|----------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1892 1934   566  xxxx xxxx xxxxx   305 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   78   67   528  xxxx xxxx xxxxx  1267 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     52   39   528  xxxx xxxx xxxxx  1267 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  2.83 0.06  0.58  xxxx xxxx  xxxx  0.42 xxxx  xxxx  xxxx xxxx  xxxx
------------|----------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx   3.7  xxxx xxxx xxxxx   2.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx  20.9 xxxxx xxxx xxxxx   9.9 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     C     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.:   52 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue: 15.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 1018 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     F    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     348.4            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        F                *                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.748
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	57	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	2 0	2 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	167	355	224	160	256	232	345	967	133	135	782	111
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	172	366	231	165	264	239	355	996	137	139	805	114
Added Vol:	0	0	0	0	0	0	0	31	0	0	53	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	172	366	231	165	264	239	355	1027	137	139	858	114
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	186	396	250	178	285	259	385	1111	148	150	929	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	396	250	178	285	259	385	1111	148	150	929	124
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	186	396	250	178	285	259	385	1111	148	150	929	124
OvlAdjVol:						66						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.65	0.35
Final Sat.:	1750	3500	1750	1750	3500	1750	3500	3500	1750	1750	4633	617
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.14	0.10	0.08	0.15	0.11	0.32	0.08	0.09	0.20	0.20
OvlAdjV/S:						0.04						
Crit Moves:			****	****				****		****		

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     ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
             Existing + Ambient + Cumulative Project Conditions
                               PM Peak Hour
--------------------------------------------------------------------------------

                    Level Of Service Computation Report
        2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #400 WILEY CANYON RD.  (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):     48.5       Worst Case Level Of Service: F[470.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|----------------||----------------||----------------||----------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Ignore           Include          Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  0  1    1  0  1  0  1
-------------|----------------||----------------||----------------||----------------|
Volume Module:
Base Vol:        6    5     1    77    6   199   554  145     6     0   79    55
Growth Adj:   1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:     6    5     1    79    6   205   571  149     6     0   81    57
Added Vol:       0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     6    5     1    79    6   205   571  149     6     0   81    57
User Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.89 0.89  0.89  0.89 0.89  0.00  0.89 0.89  0.89  0.89 0.89  0.89
PHF Volume:      7    6     1    89    7     0   638  167     7     0   91    63
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     7    6     1    89    7     0   638  167     7     0   91    63
-------------|----------------||----------------||----------------||----------------|
Critical Gap Module:
Critical Gp:   7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:   3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
-------------|----------------||----------------||----------------||----------------|
Capacity Module:
Cnflict Vol: 1570 1598   167  1542 1542    91   154 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:    91  107   882    95  116   972  1438 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:      55   60   882    58   65   972  1438 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:   0.13 0.10  0.00  1.54 0.11  0.00  0.44 xxxx  xxxx  xxxx xxxx  xxxx
-------------|----------------||----------------||----------------||----------------|
Level Of Service Module:
2WayQ95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   2.3 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx   62 xxxxx    58 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.8 xxxxx   8.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 79.4 xxxxx 470.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    F     *     F    *     *     *    *     *     *    *     *
ApproachDel:        79.4            470.5            xxxxxx           xxxxxx
ApproachLOS:          F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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---------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
              Existing + Ambient + Cumulative Project Conditions
                                PM Peak Hour
---------------------------------------------------------------------------------

                      Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Future Volume Alternative)
*********************************************************************************
Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)
*********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.219
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):         8.8
Optimal Cycle:          0              Level Of Service:                  A
*********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|-----------------||-----------------||-----------------||-----------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120     3    40     0     0     3     0   107   100    43    89     0
Growth Adj:  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03
Initial Bse:  124     3    41     0     0     3     0   110   103    44    92     0
Added Vol:      0     0     0     0     0     0     0     0     0     0     0     0
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:  124     3    41     0     0     3     0   110   103    44    92     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96
PHF Volume:   129     3    43     0     0     3     0   115   108    46    96     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  129     3    43     0     0     3     0   115   108    46    96     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  129     3    43     0     0     3     0   115   108    46    96     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       1.00  0.51  0.49  0.00  1.00  1.00  0.00  1.03  0.97  0.65  1.35  0.00
Final Sat.:   591   348   335     0   607   689     0   709   756   413   893     0
------------|-----------------||-----------------||-----------------||-----------------|
Capacity Analysis Module:
Vol/Sat:     0.22  0.01  0.13  xxxx  0.00  0.00  xxxx  0.16  0.14  0.11  0.11  xxxx
Crit Moves:  ****                          ****        ****        ****
Delay/Veh:   10.1   8.1   8.1   0.0   0.0   7.6   0.0   8.8   7.9   8.9   8.6   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  10.1   8.1   8.1   0.0   0.0   7.6   0.0   8.8   7.9   8.9   8.6   0.0
LOS by Move:    B     A     A     *     *     A     *     A     A     A     A     *
ApproachDel:        9.6               7.6               8.3               8.7
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:         9.6               7.6               8.3               8.7
LOS by Appr:         A                 A                 A                 A
AllWayAvgQ:   0.3   0.1   0.1   0.0   0.0   0.0   0.2   0.2   0.2   0.1   0.1   0.1
*********************************************************************************
Note: Queue reported is the number of cars per lane.
```

APPENDIX F

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT
LEVEL OF SERVICE WORKSHEETS

```
--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
          Existing + Ambient + Project + Other Development Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------

                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):       8.6       Worst Case Level Of Service: C[ 20.3]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:          Include          Include          Include           Include
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    39    1   303     0  107    68   480  257     0
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:    0    0     0    40    1   312     0  110    70   494  265     0
Added Vol:      0    0     0     0    0     0     0    0    57     0   19     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    40    1   312     0  110   127   494  284     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96
PHF Volume:     0    0     0    42    1   324     0  115   132   514  295     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    42    1   324     0  115   132   514  295     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1503 1569   295  xxxx xxxx xxxxx   247 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   135  112   749  xxxx xxxx xxxxx  1331 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    95   69   749  xxxx xxxx xxxxx  1331 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.44 0.02  0.43  xxxx xxxx  xxxx  0.39 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2WayQ95thQ:  xxxx xxxx xxxxx  xxxx xxxx   2.2  xxxx xxxx xxxxx   1.9 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  13.4 xxxxx xxxx xxxxx   9.4 xxxx xxxxx
LOS by Move:    *    *     *     *    *     B     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx    94 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   1.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx  72.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     F    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            20.3            xxxxxx            xxxxxx
ApproachLOS:        *                C                *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
-------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
          Existing + Ambient + Project + Other Development Conditions
                                AM Peak Hour
-------------------------------------------------------------------------------

                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)
*******************************************************************************
Average Delay (sec/veh):       2.9       Worst Case Level Of Service: C[ 16.5]
*******************************************************************************
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        0  1  0  0  1    0  0  0  0  0    1  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      52    2    81     0    0     0    61   98     0     0  658   121
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:   54    2    83     0    0     0    63  101     0     0  678   125
Added Vol:     19    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   73    2    83     0    0     0    63  101     0     0  678   125
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:    74    2    85     0    0     0    64  103     0     0  692   127
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   74    2    85     0    0     0    64  103     0     0  692   127
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  987 1051   103  xxxx xxxx xxxxx   820 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  277  229   957  xxxx xxxx xxxxx   818 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    260  211   957  xxxx xxxx xxxxx   818 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.29 0.01  0.09  xxxx xxxx  xxxx  0.08 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx   0.3  xxxx xxxx xxxxx   0.3 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx   9.1 xxxxx xxxx xxxxx   9.8 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  258 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  1.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 24.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     C    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:        16.5            xxxxxx            xxxxxx            xxxxxx
ApproachLOS:          C                *                 *                 *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100		Critical Vol./Cap.(X):	0.800
Loss Time (sec):	10	(Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	67		Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	1 0	1	2 0	2 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	183	184	147	124	378	380	121	617	104	163	831	139
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	188	190	151	128	389	391	125	636	107	168	856	143
Added Vol:	0	0	0	0	0	0	0	47	0	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	188	190	151	128	389	391	125	683	107	168	872	143
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	213	214	171	144	439	441	141	769	121	189	983	161
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	213	214	171	144	439	441	141	769	121	189	983	161
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	213	214	171	144	439	441	141	769	121	189	983	161
OvlAdjVol:						371						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.58	0.42
Final Sat.:	1750	3500	1750	1750	1750	1750	3500	3500	1750	1750	4510	740
Capacity Analysis Module:												
Vol/Sat:	0.12	0.06	0.10	0.08	0.25	0.25	0.04	0.22	0.07	0.11	0.22	0.22
OvlAdjV/S:						0.21						
Crit Moves:	****				****			****		****		

```
-------------------------------------------------------------------------------
     ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
         Existing + Ambient + Project + Other Development Conditions
                                AM Peak Hour
-------------------------------------------------------------------------------

                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #400 WILEY CANYON RD.  (NS)/ CALGROVE BLVD. (EW)
*******************************************************************************
Average Delay (sec/veh):      3.6      Worst Case Level Of Service: B[ 14.7]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|----------------||----------------||----------------||----------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Ignore           Include          Include
Lanes:        0  0  1! 0  0    0  1  0  0  1    1  0  1  0  1    1  0  1  0  1
------------|----------------||----------------||----------------||----------------|
Volume Module:
Base Vol:      11    7     1    34    1   633   117   41     9     4  182    87
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:   11    7     1    35    1   652   121   42     9     4  187    90
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   11    7     1    35    1   652   121   42     9     4  187    90
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.91 0.91  0.91  0.91 0.91  0.00  0.91 0.91  0.91  0.91 0.91  0.91
PHF Volume:    12    8     1    39    1     0   133   46    10     5  206    99
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   12    8     1    39    1     0   133   46    10     5  206    99
------------|----------------||----------------||----------------||----------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|----------------||----------------||----------------||----------------|
Capacity Module:
Cnflict Vol:  577  625    46   537  537   206   305 xxxx xxxxx    57 xxxx xxxxx
Potent Cap.:  431  404  1029   458  453   839  1267 xxxx xxxxx  1561 xxxx xxxxx
Move Cap.:    395  360  1029   413  405   839  1267 xxxx xxxxx  1561 xxxx xxxxx
Volume/Cap:  0.03 0.02  0.00  0.09 0.00  0.00  0.10 xxxx  xxxx  0.00 xxxx  xxxx
------------|----------------||----------------||----------------||----------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.3 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.2 xxxx xxxxx   7.3 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  394 xxxxx   413 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.2 xxxxx   0.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 14.7 xxxxx  14.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     B    *     *     *    *     *     *    *     *
ApproachDel:       14.7             14.6            xxxxxx           xxxxxx
ApproachLOS:         B                B                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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```
--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
          Existing + Ambient + Project + Other Development Conditions
                                  AM Peak Hour
--------------------------------------------------------------------------------

                       Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)
********************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):         0.680
Loss Time (sec):        0 (Y+R=4.0 sec)   Average Delay (sec/veh):        18.6
Optimal Cycle:          0                 Level Of Service:                  C
********************************************************************************
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign         Stop Sign         Stop Sign
Rights:           Include          Include           Include           Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  1  0   0  1  0  1  0   0  1  0  1  0   0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     128     1    33     0     0     0     0   249   201    79   140     0
Growth Adj:  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03
Initial Bse:  132     1    34     0     0     0     0   256   207    81   144     0
Added Vol:      0     0     0     0     0     0     0     0     0     0     0     0
PasserByVol:   75     0     0     0     0     0     0     0    75     0     0     0
Initial Fut:  207     1    34     0     0     0     0   256   282    81   144     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67  0.67
PHF Volume:   308     2    51     0     0     0     0   382   420   121   215     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  308     2    51     0     0     0     0   382   420   121   215     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  308     2    51     0     0     0     0   382   420   121   215     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       1.00  0.72  0.28  0.00  2.00  0.00  0.00  1.00  1.00  0.72  1.28  0.00
Final Sat.:   464   362   141     0   839     0     0   561   629   351   647     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.66  0.00  0.36  xxxx  0.00  xxxx  xxxx  0.68  0.67  0.35  0.33  xxxx
Crit Moves:  ****                    ****              ****        ****
Delay/Veh:   23.1  10.3  10.3   0.0   0.0   0.0   0.0  21.1  18.5  13.5  12.9   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  23.1  10.3  10.3   0.0   0.0   0.0   0.0  21.1  18.5  13.5  12.9   0.0
LOS by Move:    C     B     B     *     *     *     *     C     C     B     B     *
ApproachDel:       21.2            xxxxxx              19.7              13.1
Delay Adj:         1.00             xxxxx              1.00              1.00
ApprAdjDel:        21.2            xxxxxx              19.7              13.1
LOS by Appr:          C                 *                 C                 B
AllWayAvgQ:   1.7   0.1   0.1   0.0   0.0   0.0   1.9   1.8   1.8   0.5   0.4   0.4
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
------------------------------------------------------------------------------
     ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
         Existing + Ambient + Project + Other Development Conditions
                                PM Peak Hour
------------------------------------------------------------------------------

                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)
******************************************************************************
Average Delay (sec/veh):     11.8      Worst Case Level Of Service: F[ 99.4]
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  1  0  0  1   0  0  0  1  0   1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    83    0    84     0  888    63   111  199     0
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:    0    0     0    85    0    87     0  915    65   114  205     0
Added Vol:      0    0     0     0    0     0     0    0    38     0   65     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    85    0    87     0  915   103   114  270     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.89 0.89  0.89  0.89 0.89  0.89  0.89 0.89  0.89  0.89 0.89  0.89
PHF Volume:     0    0     0    96    0    97     0 1030   116   129  304     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    96    0    97     0 1030   116   129  304     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1649 1707   304  xxxx xxxx xxxxx  1146 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   110   92   740  xxxx xxxx xxxxx   617 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    92   73   740  xxxx xxxx xxxxx   617 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  1.04 0.00  0.13  xxxx xxxx  xxxx  0.21 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.5  xxxx xxxx xxxxx   0.8 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  10.6 xxxxx xxxx xxxxx  12.4 xxxx xxxxx
LOS by Move:    *    *     *     *    *     B     *    *     *     B    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx    92 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   6.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx 189.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     F    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             99.4            xxxxxx           xxxxxx
ApproachLOS:        *                 F                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 88.5 Worst Case Level Of Service: F[348.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0	1	0 0	0	0 0	1 0	1	0 0	0 0	1	0 1
Volume Module:												
Base Vol:	67	2	270	0	0	0	467	497	0	0	194	74
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	69	2	278	0	0	0	481	512	0	0	200	76
Added Vol:	65	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	134	2	278	0	0	0	481	512	0	0	200	76
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	148	2	307	0	0	0	532	566	0	0	221	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	148	2	307	0	0	0	532	566	0	0	221	84
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1892	1934	566	xxxx	xxxx	xxxxx	305	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	78	67	528	xxxx	xxxx	xxxxx	1267	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	52	39	528	xxxx	xxxx	xxxxx	1267	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	2.83	0.06	0.58	xxxx	xxxx	xxxx	0.42	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	3.7	xxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	20.9	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	C	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	52	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	15.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	1018	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	F	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	348.4			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	F			*			*			*		

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
          Existing + Ambient + Project + Other Development Conditions
                                  PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
       ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)
********************************************************************************
Intersection #300 WILEY CANYON RD.  (NS)/ LYONS AVENUE (EW)
********************************************************************************
Cycle (sec):            100             Critical Vol./Cap.(X):          0.773
Loss Time (sec):         10 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:           61             Level Of Service:                   C
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include            Ovl             Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  2  0  1    1  0  1  0  1    2  0  2  0  1    1  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     167  355   224   160  256   232   345  967   133   135  782   111
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:  172  366   231   165  264   239   355  996   137   139  805   114
Added Vol:      0    0     0     0    0     0     0   31     0     0   53     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  172  366   231   165  264   239   355 1027   137   139  858   114
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   186  396   250   178  285   259   385 1111   148   150  929   124
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  186  396   250   178  285   259   385 1111   148   150  929   124
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  186  396   250   178  285   259   385 1111   148   150  929   124
OvlAdjVol:                                 66
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1750 1750  1750  1750 1750  1750  1750 1750  1750  1750 1750  1750
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 1.00  1.00  2.00 2.00  1.00  1.00 2.65  0.35
Final Sat.:  1750 3500  1750  1750 1750  1750  3500 3500  1750  1750 4633   617
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.11  0.14  0.10 0.16  0.15  0.11 0.32  0.08  0.09 0.20  0.20
OvlAdjV/S:                               0.04
Crit Moves:  ****                 ****              ****        ****
********************************************************************************
```

```
--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
          Existing + Ambient + Project + Other Development Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #400 WILEY CANYON RD.  (NS)/ CALGROVE BLVD. (EW)
********************************************************************************
Average Delay (sec/veh):     48.5       Worst Case Level Of Service: F[470.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign      Uncontrolled     Uncontrolled
Rights:          Include          Ignore          Include          Include
Lanes:        0  0  1! 0  0   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        6    5    1    77    6  199   554  145    6     0   79   55
Growth Adj:   1.03 1.03 1.03  1.03 1.03 1.03  1.03 1.03 1.03  1.03 1.03 1.03
Initial Bse:     6    5    1    79    6  205   571  149    6     0   81   57
Added Vol:       0    0    0     0    0    0     0    0    0     0    0    0
PasserByVol:     0    0    0     0    0    0     0    0    0     0    0    0
Initial Fut:     6    5    1    79    6  205   571  149    6     0   81   57
User Adj:     1.00 1.00 1.00  1.00 1.00 0.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:      0.89 0.89 0.89  0.89 0.89 0.00  0.89 0.89 0.89  0.89 0.89 0.89
PHF Volume:      7    6    1    89    7    0   638  167    7     0   91   63
Reduct Vol:      0    0    0     0    0    0     0    0    0     0    0    0
FinalVolume:     7    6    1    89    7    0   638  167    7     0   91   63
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2   7.1  6.5  6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3   3.5  4.0  3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1570 1598  167  1542 1542   91   154 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   91  107  882    95  116  972  1438 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     55   60  882    58   65  972  1438 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.13 0.10 0.00  1.54 0.11 0.00  0.44 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx   2.3 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *    *     *    *    *     A    *    *     *    *    *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx   62 xxxxx     58 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.8 xxxxx   8.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 79.4 xxxxx 470.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    F    *     F    *    *     *    *    *     *    *    *
ApproachDel:        79.4            470.5            xxxxxx           xxxxxx
ApproachLOS:          F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URBAN CROSSROADS, IRVINE

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--------------------------------------------------------------------------------
      ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
          Existing + Ambient + Project + Other Development Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------

                       Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.363
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        9.9
Optimal Cycle:          0              Level Of Service:                A
********************************************************************************
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign         Stop Sign         Stop Sign
Rights:          Include          Include           Include           Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120     3    40     0     0     3     0   107   100    43    89     0
Growth Adj:  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03  1.03
Initial Bse:  124     3    41     0     0     3     0   110   103    44    92     0
Added Vol:      0     0     0     0     0     0     0     0     0     0     0     0
PasserByVol:   75     0     0     0     0     0     0     0    75     0     0     0
Initial Fut:  199     3    41     0     0     3     0   110   178    44    92     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96  0.96
PHF Volume:   208     3    43     0     0     3     0   115   186    46    96     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  208     3    43     0     0     3     0   115   186    46    96     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  208     3    43     0     0     3     0   115   186    46    96     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       1.00  0.66  0.34  0.00  1.00  1.00  0.00  1.00  1.00  0.65  1.35  0.00
Final Sat.:   572   425   218     0   567   638     0   643   736   384   827     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.36  0.01  0.20  xxxx  0.00  0.01  xxxx  0.18  0.25  0.12  0.12  xxxx
Crit Moves:  ****                          ****              ****  ****
Delay/Veh:   12.0   8.4   8.4   0.0   0.0   7.9   0.0   9.3   8.9   9.4   9.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  12.0   8.4   8.4   0.0   0.0   7.9   0.0   9.3   8.9   9.4   9.0   0.0
LOS by Move:    B     A     A     *     *     A     *     A     A     A     A     *
ApproachDel:       11.3               7.9               9.1               9.1
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:        11.3               7.9               9.1               9.1
LOS by Appr:          B                 A                 A                 A
AllWayAvgQ:   0.5   0.1   0.1   0.0   0.0   0.0   0.2   0.3   0.3   0.1   0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
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Appendix C CEQA Checklist

Appendix C CEQA Checklist

This appendix presents a completed California Environmental Quality Act (CEQA) Initial Study Checklist for the proposed Aliso Canyon Turbine Replacement Project. The CEQA Checklist has been completed based on the methodology and conclusion of the environmental impact analysis represented and contained in this PEA. The CEQA Checklist is provided for completeness of CEQA documentation.

1. Project title:

Aliso Canyon Turbine Replacement Project

2. Lead agency name and address:

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

3. Contact person and phone number:

Larry Sasadeusz, Project Manager
Southern California Gas Company
555 W. 5th St.
ML GT23H5
Los Angeles, CA 90013

213-244-4434

4. Project location:

The proposed Aliso Canyon Turbine Replacement Project (ACTR) originates at the Aliso Canyon Gas Storage Field, located in unincorporated Los Angeles County, at 12801 Tampa Avenue in Northridge, CA. The project includes electrical transmission and natural gas injection. The new compressor station that will provide increased injection capacity to the storage field will be located at the Plant Station site. The transmission upgrade originates in the City of Newhall, a community within the City of Santa Clarita. The transmission system extends south through Chatsworth and Sylmar, communities within unincorporated Los Angeles County. The alignment will interconnect to the new compressor station via a new substation, proposed to be located within the property boundary of the storage field. Substations to be upgraded include the Newhall substation, located near the intersection of Wiley Canyon Road and Lyons Avenue, in the City of Santa Clarita, the San Fernando Substation, located near the intersection of San Fernando Mission Boulevard and San Fernando Road, in the City of San Fernando, and the Chatsworth Substation, located near the Chatsworth reservoir near Plummer Street and Valley Circle, in unincorporated Los Angeles County. The locations of the proposed project components are represented in Figure 3.2-1 in the PEA, and Figure A-1 in the Appendix.

5. Project Sponsor:

Southern California Gas Company
12801 Tampa Avenue
Northridge, CA 91326

6. General Plan Designations

Refer to Section 4.9 Land Use and Planning, of this PEA.

7. Zoning

Refer to Section 4.9 Land Use and Planning, of this PEA.

8. Description of Project

The Proposed Project components include a proposed Central Compressor Station with three new VFD motors, relocation of the existing office trailers and guard house, a proposed PPL line interconnected to the proposed Central Compressor Station, a proposed SCE Natural Substation, and related off-site modifications to two existing SCE 66 kV sub-transmission lines and three existing SCE substations. SoCalGas is the Proponent of the Proposed Project; therefore, they will work extensively with SCE to license and implement the modifications to the SCE facilities needed to provide electrical services to the Proposed Project.

Construction of the proposed Central Compressor Station, proposed PPL, and relocation of office trailer facilities and guard house will be conducted by the Proponent. The installation of the new VFD compressor trains will not affect the existing system including the storage reservoir, wells, pressure, field lines, and other Storage Field parameters; they will be constructed to operate using the existing system without modification. The proposed Central Compressor Station will be connected to the suction, discharge and blowdown headers from the existing TDC station. Additional piping is proposed to connect the suction and discharge header at the proposed Central Compressor Station, and to connect the new compression facility to the existing emergency shutdown system; however, there are no new pipelines or wells planned as part of the Proposed Project. The TDCs will be retired in accordance with public utility retirement processes typically implemented by the Proponent. This includes maintaining the existing TDC station for at least one field cycle of tested reliable service using the VFDs in order to verify reliable and efficient operations using the new equipment.

The proposed PPL will be designed to San Diego Gas and Electric (SDG&E) Standards and constructed by the Proponent with four circuits to provide three (3) phase four (4) wire electrical services to the proposed Central Compressor Station and other existing site load. The proposed PPL will be interconnected from the proposed SCE Natural Substation to the proposed Central Compressor Station. The alignment of the PPL will be determined from several available options upon final engineering and design considerations for the proposed SCE Natural Substation. The trailer facilities relocation will remove the existing office trailers from service and place new office facilities within a designated location. The guard house will be relocated approximately 500 feet north of the existing guard house along the existing access road. The existing guard house will remain in place for security and signage purposes. The guard house relocation will provide additional staging area for incoming trucks helping to reduce associated city street congestion.

The proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission line modifications, and proposed modifications at three additional SCE substations will be constructed by SCE. The proposed SCE Natural Substation will be a 56 megavolt ampere (MVA) 66/12 kV customer dedicated substation, constructed according to SCE design specifications. The proposed SCE Natural Substation will include a communication system, mechanical engineering and electrical room (MEER), substation lighting, new poles, loop-in circuits, cables, conductors, capacitors, and transformers. To tie into the proposed SCE Natural Substation, SCE plans to rebuild a portion of the supporting towers supporting the SCE Chatsworth-MacNeil-Newhall-San Fernando 66 kV line and the SCE MacNeil-Newhall-San Fernando 66 kV existing source lines. These lines are represented on Figure 3.4-1 in the PEA.

9. Surrounding Land Uses and Setting

Existing land uses within the Proposed Project on-site components consist of natural gas storage. Existing land uses in the vicinity of the off-site electrical improvements include solid waste disposal, open space, residential, agricultural, and recreational. The overall region is characterized by canyons, hills, and mountain ranges, which provide an open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita 2008). The alignment of the proposed SCE 66 kV sub-transmission modification is located near open spaces such as the Santa Susana Mountains and associated park lands on the western side of I-5.

10. Other Public Agencies Whose Approval Is or May Be Required

- United States Army Corps of Engineers
- State Water Resources Control Board
- California Department of Fish and Game
- Los Angeles County Department of Public Works
- Los Angeles County Planning Department
- City of Los Angeles
- City of Santa Clarita

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics	X	Agriculture Resources	X	Air Quality
X	Biological Resources	X	Cultural Resources	X	Geology /Soils
X	Hazards & Hazardous Materials	X	Hydrology / Water Quality	X	Land Use / Planning
X	Mineral Resources	X	Noise	X	Population / Housing
X	Public Services	X	Recreation	X	Transportation/Traffic
X	Utilities / Service Systems	X	Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature Date

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

The CEQA Checklist has been completed based on the methodology and conclusion of the environmental impact analysis represented and contained in this PEA. The following CEQA Checklist is provided for completeness of CEQA documentation.

CEQA CHECKLIST:

ENVIRONMENTAL RESOURCE IMPACT	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?			**X**	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			**X**	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			**X**	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			**X**	
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				**X**

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		X		
d) Expose sensitive receptors to substantial pollutant concentrations?		X		
e) Create objectionable odors affecting a substantial number of people?			X	
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
means?				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			X	
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?			X	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?			X	
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	
VII. HAZARDS AND HAZARDOUS MATERIALS B Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
create a significant hazard to the public or the environment?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			X	
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			X	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?				X
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?			X	
X. MINERAL RESOURCES - Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
XI. NOISE - Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
XIII. PUBLIC SERVICES -- Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X
XIV. RECREATION -- Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Result in inadequate parking capacity?			X	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X
XVI. UTILITIES AND SERVICE SYSTEMS B Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project=s projected demand in addition to the providers existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X
XVII. MANDATORY FINDINGS OF SIGNIFICANCE -- Would the project:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Appendix D List of Preparers

APPENDIX D List of Preparers

Consultants

Resources Area	Resource Lead	Company
Aesthetics	Anne Pietro, Senior Program Manager	AECOM
	Nathan Counts, Associate	AECOM
	Greg Wolffe, Senior Program Manager	AECOM
	Steve Heisler, Ph.D., Vice President	AECOM
	Charanaya Varadarajan, Ph.D., Air Quality Engineer	AECOM
Air Quality	Sarah Sullivan, Air Quality Specialist	AECOM
Agricultural Resources	Stephanie Klock, Environmental Planner	EDAW
	Kim Christiansen, Senior Associate Planner	EDAW
Biological Resources	Manju Venkat, Senior Biologist	AECOM
	Rocky Brown, Project Specialist	AECOM
Cultural Resources	Christopher Doolittle	AECOM
Geology, Soils and Seismicity	Anthonny Lizzi, Professional Geologist	AECOM
	Geoff Knight, Senior Project Manage	AECOM
	Ken Patton	AECOM
Hazards and Hazardous Materials	Geoff Knight, Senior Project Manager	AECOM
Hydrology and Water Quality	Roy Hauger,	AECOM
	Ken Patton, AECOM	AECOM
Land Use and Planning	Stephanie Klock, Environmental Planner	EDAW
	Kim Christiansen, Senior Associate Planner	EDAW

Mineral Resources	Anthonny Lizzi, Professional Geologist	AECOM
	Ken Patton	AECOM
Noise	William Maddux	AECOM
	Greg Wolffe, Senior Project Manager	AECOM
Population and Housing	Anne Pietro, Senior Program Manager,	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
Public Services	Anne Pietro, Senior Program Manager	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
	Nathan Counts, Associate	AECOM
Recreation	Anne Pietro, Senior Program Manager	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
	Nathan Counts, Associate	AECOM
Transportation and Traffic	Scott Sato	Urban Crossroads
	Michael Benner, Vice President	AECOM
Utilities	Anne Pietro, Senior Program Manager	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
	Nathan Counts, Associate	AECOM
Cumulative Impact Analysis	Michael Benner, Vice President	AECOM
	Nathan Counts, Associate	AECOM
Growth-Inducing Impacts	Jerry Flores	AECOM

Technical Support	Peter Jonas, GIS Specialist	AECOM
	Hans Mayer, GIS Technician	AECOM

Contributors

Southern California Gas Company	**Southern California Edison Company**
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Estella de Llanos, Legal Counsel	Jack Haggenmiller, P.E., Project Manager
James Strader, Project and Construction Manager	Kendra Heinicke, Transmission Estimator
Don Houston, Environmental Manager	Jeffrey Miller
	Christine MacLoed, Regulatory Affairs Manager
	Leanne Swanson, P.E., Project Manager
	Chris May, Environmental Coordinator

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