SEMPRA COMMUNICATIONS' APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY | CPUC A.00-02-020

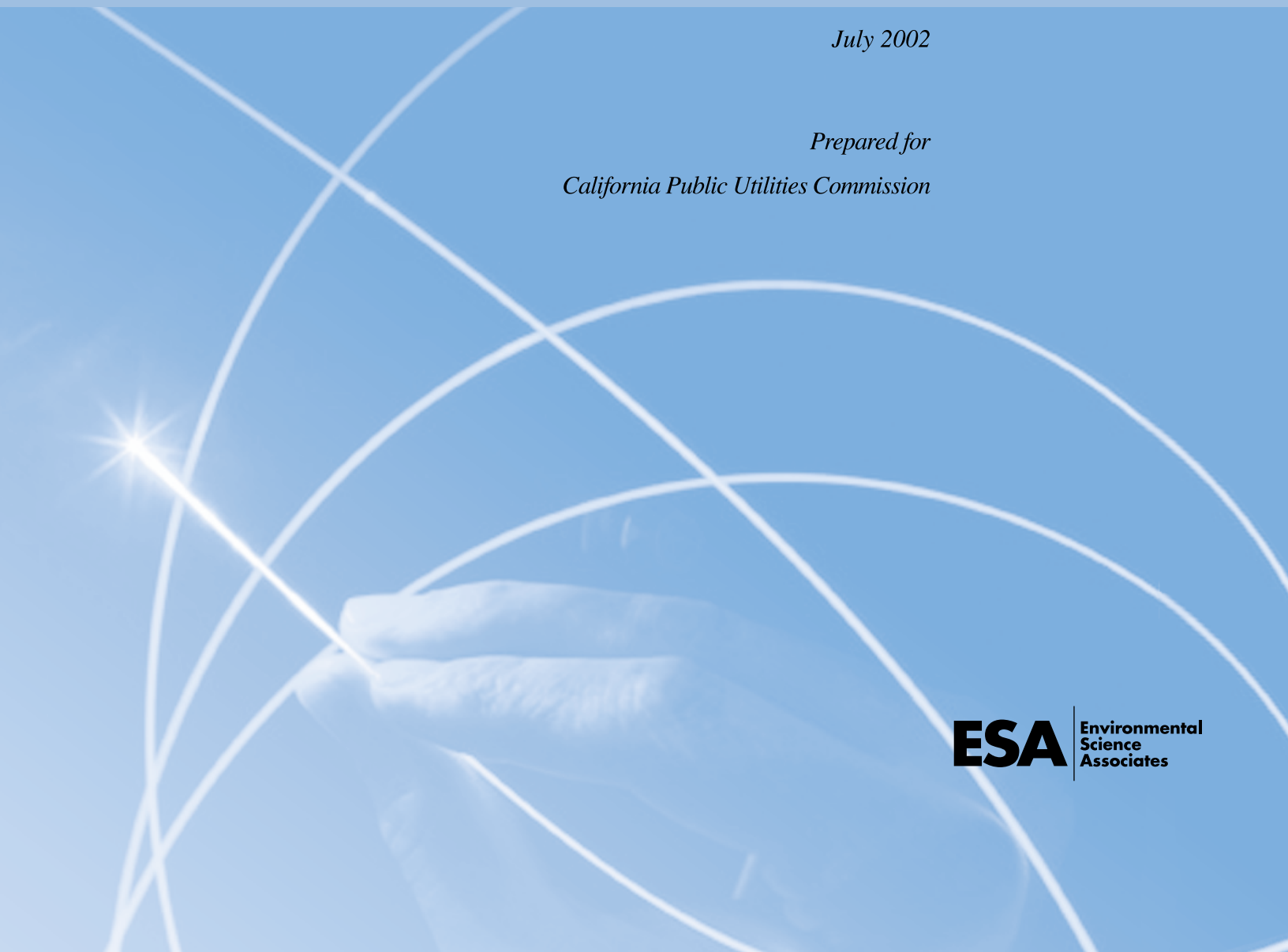
Draft Program Environmental Impact Report

SCH No. 2002042114

July 2002

Prepared for

California Public Utilities Commission



ESA Environmental Science Associates

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CHAPTER 1.0

EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Program EIR for Sempra Communications' application for a Certificate of Public Convenience and Necessity (CPCN) from the California Public Utilities Commission (CPUC) describes a proposal by Sempra Communications to provide telecommunications infrastructure and services to selected markets throughout California using state-of-the-art fiber optic cable technology. The proposal does not address any specific construction project, network, or system but instead proposes a Telecommunications Program . The proposed Telecommunications Program is intended as a guide for planning and implementing telecommunications infrastructure and providing services to customers in primarily urbanized areas throughout 15 counties in California. The project proposes several methods for installation of fiber optic cable and related facilities including open trench, plow, horizontal directional bore, aerial attachments, and transmission tower attachments (i.e., replacement of optical ground wiring).

On February 11, 2000, Sempra Communications applied to the CPUC for a CPCN to operate as a facilities-based reseller of telecommunications services on a statewide basis (Application No. 00-02-020). In D.00-06-019 (June 8, 2000), the Commission granted the joint motion of Sempra Communications and the Commission's Office of Ratepayer Advocates (ORA) requesting that Sempra Communications be granted limited facilities-based local exchange authority only. The decision further stated that authorization for expanded facilities-based authority involving construction work for infrastructure installation would require conformance with California Environmental Quality Act of 1970 (CEQA) requirements prior to approval by the Commission.

To address the Commission's requirement for CEQA compliance, on June 8, 2000, Sempra Communications filed a Supplemental Proponent's Environmental Assessment (Supplemental PEA) that had been attached as Exhibit 2 to its original application for a CPCN. Sempra Communications filed its Supplemental PEA in accordance with CPUC CEQA Rule 17.1 to address specifically the affect on the environment that could result from Sempra Communications' statewide application for a full facilities-based CPCN. Sempra Communications did not address any specific construction project in its Supplemental PEA, but provided a programmatic evaluation of the types of facilities, construction projects, construction methods, locations, and operations likely to be undertaken by Sempra Communications, and the potential for those activities to affect the environment.

As the Lead Agency in this matter, the CPUC determined that CEQA required preparation of an Environmental Impact Report (EIR). The CPUC chose to develop a Program EIR to analyze

potential impacts of program level implementation and thereby establish a process and set performance standards that will apply to subsequent activities proposed by the applicant.

1.2 PROJECT DESCRIPTION

Sempra Communications proposes to provide telecommunications infrastructure and services to selected markets throughout California using state-of-the-art fiber optic cable technology. The proposal does not address any specific construction project, network, or system but instead proposes a Telecommunications Program. The proposed Telecommunications Program is intended as a guide for planning and implementing telecommunications infrastructure and providing services to customers in primarily urbanized areas throughout 15 counties in California (see **Table 3-1** and **Figures 3-1** through **3-15**). The project proposes several methods for installation of fiber optic cable and related facilities including open trench, plow, directional bore, aerial attachments, and transmission tower attachments (i.e., replacement of optical ground wiring [OPGW]). A general discussion of the types of construction methods that would be used to install the fiber optic cable facilities is provided in Chapter 3.

The document has been prepared as a program EIR, pursuant to Section 15168 of the State and CEQA Guidelines. The CPUC chose to develop a Program EIR to efficiently evaluate the Telecommunications Program proposed by the applicant. As such, it broadly analyzes the effects of project implementation that could be anticipated to occur as a result of the CPUC approval of the CPCN. The Program EIR identifies the potential environmental effects of likely future scenarios, sets performance standards, and provides mitigation and a compliance process for avoiding or reducing potentially significant impacts to less-than-significant levels. Subsequent activities would be subject to an environmental evaluation process at the time it is proposed (consistent with CEQA Guidelines Section 15168), although no new environmental impact report would be required unless the particular project would result in new or substantially more severe environmental effects than those disclosed herein.

The document analyzes the significance of potential impacts from construction, maintenance, and operation of the proposed project and identifies the mitigation measures or processes needed to avoid or reduce each potential impact from subsequent activities. Subsequent activities and related construction would be confined to the geographical scope of the project area as described and illustrated in the project description (chapter 3) and evaluated in this document. No unauthorized construction requiring CEQA review would be permitted in areas beyond the scope of this document and outside the project areas.

The objective of this Program EIR is to evaluate the potential impacts of the proposed project and to establish a clear process for implementing mitigation measures and ensuring mitigation compliance. This EIR also includes a process for CPUC CEQA evaluation (using this Program EIR) of program activities, e.g., installation of fiber optic facilities within the project area, that are proposed in the future consistent with the CPCN. Subsequent activities may only be undertaken after an evaluation occurs of whether the impacts of those activities were covered by this Program EIR, and if so, mitigation measures are matched with those activities. This Program EIR ensures

CEQA compliance for the CPUC (lead agency) to issue a full facilities-based CPCN. This Program EIR also ensures CEQA compliance for responsible agencies issuing permits and approvals for subsequent activities, and it provides a process for determining appropriate mitigation measures and monitoring when specific activities are identified. The Program EIR does not provide CEQA compliance for unauthorized projects outside the scope of the document or limit the authority of the responsible agencies issuing other permits and approvals for subsequent activities.

1.3 ALTERNATIVES

CEQA *Guidelines* (Sections 15123[b][3] and 15126[d]) requires an EIR to consider a range of alternatives that could feasibly attain the basic objectives of the proposed project.

The Program EIR addresses five alternatives to the proposed project: (1) a No Project Alternative; (2) Reduction of the Project Area Alternative; (3) Aerial Installation Only Alternative; (4) Underground Installation Only Alternative; and (5) Use of Existing Infrastructure Only Alternative. These alternatives are described below, followed by a discussion of their impacts and how they would differ from those of the proposed project.

These alternatives would not introduce additional impacts to those identified and mitigated in the EIR for the proposed project, but would instead use the impacts analysis for the project to determine the extent of those impacts for each method of installation if they were used exclusively. Therefore, the analysis of the potential significant effects for each alternative is generally discussed in this chapter and utilizes by reference the impacts analysis for the project as a basis for investigating the effects of each alternative.

1.4 SUMMARY OF MITIGATION MEASURES

Table 1-1, at the end of this chapter, presents a summary of all the impacts and mitigation measures identified for the project. Most of these impacts were determined to potentially significant if no mitigation were implemented but the Program EIR also determines that these impacts can be mitigated to less than significant with the implementation of the identified measures. The significance criteria for each topic issue is discussed in each of the technical sections of this Program EIR.

The proposed project would have effects on biological and cultural resources, air quality, water quality, land use, aesthetics, agriculture, traffic, and noise that are potentially significant. The majority of the project impacts result from construction activities. They are temporary impacts that can be mitigated to less than significant levels with the mitigation measures identified in the Program EIR. However, the Telecommunications Program, if implemented, could still result in significant unavoidable environmental impacts. Mitigation proposed as part of the project, as well as measures identified in this EIR, would avoid or reduce most of the impacts to a less-than-significant level. But, the following significant adverse affects would be unavoidable, even with

the implementation of the mitigation measures proposed as part of the project and identified in this report:

Impact HYD-4: Possible water quality degradation and siltation from accidental seepage or spillage of drilling fluids into streams.

Impact AIR-3: Emissions from construction activities could add to the regional pollutant loading of the area.

1.5 CUMULATIVE IMPACTS

A cumulative impact is created as a result of the combination of the project evaluated together with other projects causing related impacts. The purpose of the analysis in the Program EIR is to disclose potential significant cumulative impacts resulting from the Telecommunications Program in combination with other comparable projects. The project involves the potential for construction of fiber optic cable facilities including regenerator/OP-AMP station throughout the project area. Other companies with fiber optic networks in the project area include, but are not limited to, Qwest, XO Communications, Williams, AT&T Local Services, MCI WorldCom, Worldwide Fiber, Western Integrated Networks, Level 3 Communications, Metromedia Fiber Network, ICG, Time Warner and Cox Cable. It is reasonable to assume that some of these companies have or are planning other networks elsewhere in California, as well. In addition to fiber optic networks, other linear, underground projects in the project area that have related construction impacts include water and sewer pipelines and other utilities.

It is anticipated that the construction associated with installation of telecommunications infrastructure would not overlap with other public or private utility projects during the same timeframe on any given segment of the project, and such overlap would likely be identified during Sempra Communication's process of obtaining encroachment permit for subsequent actions.

Given the current interest in fiber optic communications systems, it is conceivable that significant cumulative impacts could result from companies consecutively working within the same streets or neighborhoods. Local jurisdictions have in some cases responded to such cumulative effects by establishing moratoria on work on certain streets for given periods of time (e.g., 1 or 2 years). The establishment of such moratoria is one way of gauging whether significant adverse cumulative effects threaten a particular street or neighborhood. Such moratoria are intended to alleviate such effects, of course, and the denial of encroachment permits to construct on such streets while the moratorium is in effect prevent a given project from contributing to significant adverse impact on the protected street or area.

Future projects planned by one or more of the fiber optic companies currently operating throughout the project area (or any other fiber optic companies) would not be publicly known until the company submits an application for an encroachment permit (or other permit or approval). Therefore, the precise routes of other projects with which Sempra Communication's

subsequent activities might contribute to cumulative impacts are not known. The temporary nature of the proposed project's potential effects, and the reduction in project impacts by implementation of mitigation measures discussed in this document reduces the project's incremental contribution to cumulative impacts. The project's contribution to cumulative impacts would not be considered cumulatively considerable with the exception of significantly unavoidable cumulative impacts that may occur with respect to air quality in cases where applicable mitigation measures are not feasible to reduce the residual impact of construction emissions below significance thresholds.

TABLE 1-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AESTHETICS			
AES-1: The project could have an adverse effect on a scenic vista or damage a scenic resource.	Potentially Significant	**AES-1a:** Sempra Communications shall identify all scenic resources within 1,500 feet of the proposed activity and locate all permanent substantial aboveground features a minimum of 1,000 feet away from scenic resources.	Less than Significant
AES-2: Minor changes in the existing visual character or quality of a site could result from project construction and operation.	Potentially Significant	**AES.2a:** Sempra Communications shall minimize visual impacts of fiber optic cable facilities and comply with local regulations concerning architectural design and landscaping, shall keep construction and staging areas orderly and free of trash and debris, and shall restore areas disturbed by project construction along the proposed route to their pre-project condition.	Less than Significant
AGRICULTURAL RESOURCES			
AGR.1: Inconsistency with applicable land use designations and policies.	Potentially Significant	**AGR-1a:** The proposed project consistency shall adhere to each County and City ordinance and policy, and be consistent with project area specific goals, policies, and zoning ordinances. **AGR-1b:** Sempra Communications' shall consult with all potentially affected landowners associated with installation of fiber optic cable facilities in portions of the project area that crosses farmland as part of the right of way use or land acquisition process.	Less than Significant
AGR.2: Conduit and associated facility installation could result in temporary disruption of agricultural lands.	Potentially Significant	**AGR-2a:** Notify landowners of impeding work and restore work site to pre-project conditions.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AIR QUALITY			
AIR-1: Construction activities could increase local pollutant concentrations of particulate matter (from fugitive dust) and carbon monoxide.	Potentially Significant	**AIR-1a:** Sempra Communications would require construction contractors to implement the following construction dust abatement program: • Water all active construction areas at least twice daily; • Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard; • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites; • Sweep daily (with water sweepers) all paved surfaces at construction sites; and • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.	Less than significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		AIR-1b: For subsequent activities located within the jurisdictions of SCAQMD, SDCAPCD, and ICAPCD, Sempra Communications would require construction contractors to implement measures required under SCAQMD Rule 403 (as described above in Section 4.3.1) for high wind and normal wind conditions to reduce PM-10 emissions from the various fugitive dust sources associated with project construction, and maintain the necessary documentation that demonstrates compliance with the rule. **AIR-1c:** For subsequent activities located within the jurisdiction of SJVUAPCD, construction contractors shall implement a dust-abatement program that complies with the District's Regulation VIII Control Measures to reduce the contribution of project construction to local respirable particulate matter concentrations. This program shall include the following measures: • Water, chemical soil stabilizers/suppressants, or vegetative ground cover shall be used to control fugitive dust from all disturbed areas, including storage piles, which are not being actively used at the construction site. • Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust from all unpaved roads on-site and all off-site unpaved access roads to the construction site.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Applications of water or presoaking shall be performed to control fugitive dust from all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities. • Cover and wet all materials transported off-site or require all trucks to maintain at least six feet of freeboard from the top of the container. • Remove accumulated mud or dirt from adjacent public streets at least once every 24 hours during construction periods. (The use of dry rotary brushes is expressly prohibited, except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is also expressly forbidden.) • Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust after each addition of materials to or removal of materials from all storage piles.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AIR-2: Emissions from construction activities could add to the regional pollutant loading of the area in air basins where air districts have set significance thresholds for both project construction and operation.	Potentially Significant	**AIR-2a**: Sempra Communications would require its construction contractors to comply with the following requirements during project construction: • Use of California on-road diesel fuel for all diesel-powered construction equipment; • Use of construction equipment that is properly tuned and maintained in accordance with manufacturers' specifications; • Use of best management construction practices to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use).	Implementation of Mitigation Measures AIR-2a and -2b would reduce the impact of construction emissions to a less than significant level. In cases where Mitigation Measure AIR-2b is not feasible, even with the implementation of the Mitigation Measure AIR-2c, the residual impact of construction emissions would be significant. This would be a significant unavoidable impact of the project on air quality.

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Suspension of emissions-generating construction activities during "Stage 2" smog alerts. Stage 2 air pollution episodes occur under the California Air Pollution Emergency Episode Plan when hourly ozone concentrations reach 0.35 parts per million (CARB, 1998). **AIR-2b**: To the extent feasible, Sempra Communications would employ a maximum of number work crews on any given workday, such that daily, quarterly, or yearly levels of significance for each air district shown on **Table 4.3.11** are not exceeded. This would reduce any significant impacts of construction to the regional pollutant burden to a less than significant level. **AIR-2c**: For subsequent activities where implementation of Mitigation Measure AIR-2b is not feasible, Sempra Communications would require the prime construction contractor to use aqueous emulsified fuels instead of diesel fuel. CARB recently certified Lubrizol Corporation's "PuriNOx" as an alternative fuel for diesel engines and the fuel is available commercially. Based on data submitted, CARB has determined that use of PuriNOx reduces NOx emissions by 14 percent and PM-10 emissions by 63 percent.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AIR-3: Operational emissions associated with subsequent activities could introduce additional emissions into the area that could conflict with the applicable regional air quality plans.	Potentially Significant	**AIR-3a:** Sempra Communications would limit the use of emergency diesel generators to back-up, nonutility electrical power generation purposes only (or for related testing and maintenance purposes) for an aggregate period not to exceed 200 hours per year as documented by an engine-hour meter or equivalent method;	
		AIR-3b: Use of diesel fuel with sulfur content shall not exceed 0.05 percent by weight.	Less than significant
AIR-4: The project could expose sensitive receptors to substantial pollutant concentrations.	Potentially Significant	Implement Mitigation Measures AIR-3a and -3b.	Less than significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AIR-5: The project could create objectionable odors affecting a substantial number of people.	Less than Significant	None required	Not Applicable
BIOLOGICAL RESOURCES			
BIO-1: Installation and maintenance of cable and supporting equipment and other facilities within or adjacent to undeveloped areas could result in adverse impacts to biological resources in the absence of route surveys to identify specific locations of biological resources within the project area.	Potentially Significant	**BIO-1a:** Sempra Communications shall retain a qualified biologist to evaluate specific location descriptions, including, as necessary, field assessments of each work plan, and documentation of the findings of this assessment. This evaluation will include a discussion of biological resources with moderate to high potential to be affected by the proposed action, and a brief justification for those not considered further (i.e. those species for which no habitat occurs in the proposed project area or sensitive habitat types not present within the project area). The assessment shall also include a search of most recent CNDDB records for the USGS quads within which the work plan occurs. **BIO-1b:** Sempra Communications shall retain qualified biologists to conduct an environmental education program for construction crews and their supervisors before construction activities begin (including site preparation and staging of equipment and materials), and shall enforce construction restrictions described elsewhere in this section prior to construction.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		BIO-1c: In the majority of circumstances, trenching installation methods are expected to occur in existing public rights of way within urbanized areas. In some circumstances, trenching could occur in roadways immediately adjacent to habitat potentially occupied by special status species. Only rarely might trenching installation occur on land that is undeveloped. In these latter two circumstances, the following measures shall be applied to avoid or minimize impacts of noise and activity associated with trenching installation on special status species: • All trenching shall be backfilled as soon as possible to prevent entrapment of animals. Any trench left overnight shall be covered or adequately fenced. • Trenches shall be inspected in the morning if the trench is inadvertently left open overnight, or if covering is incomplete. Alternatively, escape ramps may be used if approved by the biological monitor. • Only biological monitors may remove animals from trenches or from the work areas. Only biological monitors with specific permits from resource agencies may move listed specials status species. • Trenching spoils shall be placed within future disturbed areas or within the ROW.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Topsoils shall be stockpiled separately from other excavated soils. Ensure that backfilling occurs in the reverse order of excavation. • Revegetation, where required as a site-specific mitigation measure, shall utilize native species and erosion control measures must be in place prior to the first rain in the fall, or by October 15, whichever is earlier. Exceptions to this cut-off date may be applied for on a case by case basis. **BIO-1d:** Minimum standards to reduce or avoid impacts from aerial installation: • Avoid use of helicopters for OPGW cable installation during the breeding season of birds and bats or in areas that support species sensitive to noise (e.g. certain nesting raptors). • To the extent possible, previously disturbed sites within the project area and existing access roads shall be used by vehicles assisting helicopters in aerial installation. Storage of equipment, location of office trailers, parking of vehicles, and any other surface-disturbing activity shall take place within these previously disturbed areas. Parking and vehicle storage areas shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle off-road travel.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		BIO-1e: The following general construction guidelines will be implemented to reduce or avoid impacts to biological resources: • Except on federal, state or county-maintained roads, vehicles shall not exceed 20 miles per hour. • No firearms are allowed on site. • No pets are allowed on site. • All food items shall be contained and removed from the site daily to prevent attracting wildlife to the site. • Prior to construction each access route and construction area (or other area defined by biologist) shall be clearly flagged, signed or staked, limiting construction activities to the areas designated on the pre-construction plan. • If flags or staking are required to demarcate/delineate natural or undisturbed habitat, then construction activities shall be restricted to the Right-of Way (ROW), or the future site of associated facility, with work area boundaries delineated with flagging or other marking to minimize surface disturbance.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• The area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. To the extent possible, previously disturbed sites within the project area shall be used for the stockpiling of excavated material, storage of equipment, digging of slurry and burrow pits, location of office trailers, parking of vehicles, and any other surface-disturbing activity. Work area boundaries, including parking and vehicle storage, shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle off-road travel. • Erosion control measures (e.g., netting or staking) shall be placed along new roadways if within sensitive plant areas and road outslopes exceed 20%. • When working near or above streams (<100 feet), do not move earth within 24 hours of a predicted storm.	
BIO-2: Installation of cable and supporting equipment and other facilities within or adjacent to stream crossings, riparian habitats, and wetlands could result in permanent or temporary adverse effects to special status wildlife species associated with these aquatic and riparian habitats.	Potentially Significant	**BIO-2a:** Wherever feasible, avoid riparian and wetland habitats that support special-status aquatic species by establishing, maintaining, and observing exclusion zones. If avoidance of riparian and wetland habitats is possible through directional bore or jack-and-bore methods, the following measures would apply:	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• If an amphibian/reptile exclusion fence is required to prevent migration of listed amphibians or reptiles into the construction area, the fence shall be constructed under the direction of a qualified biologist. The fence shall be constructed of 4x8-foot or 4x10-foot plywood sheets and be located to avoid all burrows. It shall extend three feet six inches above the ground and six inches below ground. The fence shall be supported sufficiently to maintain its integrity, and maintained in good condition for the duration of ground-disturbing activities, including site restoration or revegetation following construction. The biological monitor will indicate when fences may be removed.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• A biological monitor shall visit each wetland or stream boring site at least once daily during construction, with continuous monitoring at streams that support fisheries habitat or provide habitat for special status species. The monitor will check exclusion fencing to ensure that it is intact. The biological monitor shall ensure that all provisions of the state and/or federal wetlands permits are followed and that an adequate setback of at least 20 feet is observed at wetland and/or riparian (woody vegetation) edges that provide suitable habitat for sensitive species. This setback distance is considered an initial guideline which may be modified at specific sites following informal consultation with federal and state resource agencies, and as new information becomes available regarding wildlife habitat use. In addition, because a resource specialist will inspect all stream crossings prior to construction, additional sites that were not initially identified as potential habitat may be identified as special status species habitat at a later time.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• In the event that equipment is required to operate in any watercourse with flowing or standing water for any reason (for example, cleanup of an accidental bentonite clay spill), a biological resource monitor shall be present at all times to alert construction crews to the possible presence of sensitive species at risk during boring operations. If any harm or harassment to occupied aquatic habitat could occur, the monitor shall immediately and directly notify the construction supervisor to halt the activity and the construction technique modified to eliminate any chance of harm to the species. In the case of an accidental substance release into one of these streams, resource agencies shall be contacted immediately. • To avoid affecting habitat that may support sensitive aquatic species, impacts on woody riparian vegetation may be avoided by boring underneath drainages that support this habitat type. A minimum 20-foot-wide setback shall be established and staked by a resource specialist before construction activities. This buffer shall extend between the edge of the woody riparian vegetation and construction exclusion fencing. Equipment shall be located beyond this point.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Woody riparian vegetation close within the vicinity of subsequent activities that could be indirectly or inadvertently affected by construction operations shall be protected by installation of temporary fencing or staking and flagging of a minimum 20-foot-wide setback. Depending on site-specific conditions, this buffer may be narrower than 20 feet (e.g., in the case of a concrete-lined ditch) or wider than 20 feet (where special status species may be present), as determined by a qualified biologist. At locations where equipment access (e.g., bore entrance and exit pits) is located entirely within roads and no sensitive resources are present, no stream setback distances may be required. Identification and protection of woody riparian vegetation close to the work zone shall include either flagging or fencing, depending on site-specific conditions. The resource monitor shall confirm that protective measures are in place at specific work locations before construction activities begin at each crossing site. Protective fencing shall remain in place until all construction activities in the area are complete. No woody vegetation greater than one inch in diameter shall be removed from stream corridors without permission from CDFG (see Mitigation Measure BIO-11a).	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Confine construction equipment and associated activities to the designated construction areas in areas that support sensitive resources. In areas that support sensitive biological resources (e.g., areas that support riparian and wetland communities and special-status species), the area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, public health and safety, and other limiting factors. Work area boundaries shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying and minimize the potential for inadvertent worker intrusion into sensitive areas. Special habitat features identified by the resource monitor shall be avoided to the extent possible and previously disturbed areas within the work site shall be utilized for stockpiling excavated materials, equipment storage, and vehicle parking. During the worker environmental education program, construction personnel shall be informed of the importance of maintaining a narrow work corridor. The resource monitors shall ensure that construction equipment and associated activities avoid any disturbance of sensitive resources outside the construction corridor.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• If construction is proposed in upland areas adjacent to potential breeding habitat for listed species or candidate species for listing, a qualified wildlife biologist will conduct pre-construction surveys of these areas for aestivation habitat for these species. If feasible within the context of the work area, aestivation areas would be temporarily fenced and avoided. At locations where aestivation burrows are identified and cannot be avoided, aestivation burrows of non-listed species (*i.e.*, California tiger salamander) would be excavated between May and October by hand prior to construction and individual animals moved to natural burrows or artificial burrows constructed of PVC pipe within 0.25 miles of the construction site. **BIO-2b:** If avoidance of aquatic or riparian habitats with the potential to support non-listed special-status aquatic species is not feasible, the following would apply: • Construction activities will occur between March and October when water flow is absent or at its lowest level unless otherwise negotiated with responsible agencies. • Prior to construction, a qualified biological monitor will survey the construction area, including aquatic habitat and adjacent upland habitat, for special-status species.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• If non-listed special-status species are identified within the construction area, the biological monitors will temporarily relocate individuals upstream of the construction site, and temporary barriers will be placed around the construction site to prevent ingress. **BIO-2c:** If avoidance of aquatic or riparian habitats with the potential to support listed aquatic species is not feasible, a plan to avoid or reduce adverse impacts to these species will be developed through informal consultation with CDFG, USFWS, and NMFS, depending on the species potentially present at the site. If a Programmatic Biological Opinion (PBO) has been developed for specific listed species potentially present at the site (i.e. California red-legged frog, giant garter snake, vernal pool fairy shrimp), measures from this PBO such as seasonal restrictions, pre-construction surveys, worker environmental education sessions, biological monitoring, and revegetation programs will be included in the plan.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
BIO-3: Construction that occurs within or adjacent to habitat that supports nesting birds or breeding bats may disrupt breeding behavior and cause nest/roost abandonment and loss of young.	Potentially Significant	**BIO-3a:** If construction activities are scheduled during the non-breeding season (generally September through January, but this is subject to case-by-case consideration of the breeding activity) within or adjacent to habitats that may support protected nesting bird or roosting bat species, mitigation is only required for certain species for which CDFG or USFWS has established non-breeding season protocols (i.e. burrowing owl). Measures such as avoidance and passive relocation of species, which are included in these protocols, will be required for construction activities within or adjacent to suitable habitat. **BIO-3b:** If construction activities are scheduled during the breeding season (generally February through August, but this is subject to case-by-case consideration of the breeding activity), a no-disturbance buffer zone would be established around active nests/roosts to avoid potential adverse effects on protected nesting birds and breeding bats. Helicopters would not be used to install fiber optic facilities during the breeding season in areas which may support breeding birds or bats.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
BIO-4 Construction that occurs within or adjacent to habitat that supports special status burrowing mammals may result in adverse impacts to these species.	Potentially Significant	**BIO-4a:** Pre-construction surveys of work areas within or adjacent to undeveloped areas determined to be potential habitat shall be conducted by qualified wildlife biologists trained to recognize burrows and dens of particular mammals, as well as tracks, scat and other diagnostic sign. A habitat assessment of the site shall be conducted by a qualified biologist to determine whether special-status mammal habitat, including burrows or dens, exists within proximity of the work area, and if so, whether the proximity, type of activity, and distance from the work could result in abandonment of the burrows or dens, depending on the species. **BIO-4b:** If potential habitat for special-status burrowing mammals (burrows, scat, tracks, or other diagnostic sign) is located within 0.5 miles of construction areas but greater than 200 feet from proposed activities, the following measures shall apply: • Exclusion fencing shall be constructed and maintained in good condition around construction areas. The temporary fence shall be constructed with typical silt fencing, and shall be substantial enough to deter animals from entering the work area and to prevent parking construction vehicles or staging or storage of construction materials on adjacent habitat. The location of the fence shall be determined by the biological monitor.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• All open trenches shall be covered and secured at the end of each work day. If trenches remain excavated overnight, temporary escape ramps shall be installed with a 2:1 slope or less or trenches shall be covered by steel plate or plywood and checked in the morning prior to construction to ensure that no wildlife species are inadvertently trapped. • A biological monitor shall inspect the fences and trenches at a minimum of once a day. If listed species are trapped in the trenches, they can only be moved by biologists with appropriate permit or approval from USFWS or CDFG. • If construction areas are located in paved roads or other highly disturbed ROW, exclusion fencing shall only be constructed around the construction area when adjacent potential habitat for special-status burrowing mammals is within five feet of the work area.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		BIO-4c: If potential habitat for special-status burrowing mammals (burrows, scat, tracks, or other diagnostic sign) is identified within 200 feet of construction areas; tracking, night photography, or trapping surveys of all potential habitat will be conducted to determine presence or absence of special-status mammals. Survey methods will be consistent with USFWS and CDFG protocols and other agency guidelines, such as the USFWS *Standardized Recommendations for Protection of the San Joaquin Kit Fox* (USFWS, 1997).	
		BIO-4d: If surveys identify special-status mammals within proposed construction areas, consultation with CDFG and USFWS will determine further measures for avoiding or reducing adverse impacts to these species. Measures will likely include seasonal restrictions, pre-construction surveys, worker environmental education sessions, biological monitoring, and revegetation programs.	
BIO-5: Construction that occurs within or adjacent to upland habitat that supports special status reptiles may result in adverse impacts to these species.	Potentially Significant	**BIO-5a**: If it is feasible for construction activities to avoid potential upland habitat for non-listed special-status reptiles, the following measures will exclude transient reptiles from the construction area:	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Exclusion fencing shall be constructed and maintained in good condition between construction areas and potential habitat for special status reptiles. The temporary fence shall be constructed with typical silt fencing, and shall be substantial enough to deter animals from entering the work area and to prevent parking construction vehicles or staging or storage of construction materials on road shoulders adjacent to habitat. The location of the fence shall be determined by the biological monitor. • All open trenches shall be covered and secured at the end of each work day. If trenches remain excavated overnight, temporary escape ramps shall be installed with a 2:1 slope or less or they shall be covered by steel plate or plywood. All excavated trenches shall be checked in the morning prior to construction to ensure that no wildlife species are inadvertently trapped. • A biological monitor shall inspect the fences and trenches at a minimum of once a day. Any reptiles trapped in the trenches shall be moved outside the construction area.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		BIO-5b: If it is not feasible for construction activities to avoid potential upland habitat for special-status reptiles (or State Fully Protected reptiles), transect or trapping surveys for these species and other measures for avoiding or reducing adverse impacts to these species will be developed through consultation with CDFG and USFWS.	
BIO-6: Construction that occurs within or adjacent to habitat that supports special status invertebrates may disrupt these species at vulnerable stages of their life cycle, or may eliminate host plants that are essential for completion of their life cycle.	Potentially Significant	**BIO-6a:** Prior to construction activities within or adjacent to potential habitat for special status invertebrate, a qualified wildlife biologist will conduct a survey for host plants occurring within 100 feet of proposed construction activities.	Less than Significant
		BIO-6b: Wherever feasible, fence off and avoid removal of plants which may support special-status invertebrates during any stage of their life cycle.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		BIO-6c: If avoidance of host plants is not feasible, a plan to avoid or reduce adverse impacts to sensitive invertebrate species will be developed through informal consultation with CDFG and USFWS. If a Programmatic Biological Opinion (PBO) has been developed for specific listed species potentially present at the site (*i.e.*, valley elderberry longhorn beetle), measures from this PBO such as seasonal restrictions, pre-construction surveys, worker environmental education sessions, biological monitoring, and revegetation programs will be included in the plan. If a survey protocol has been developed for specific listed species potentially present at the site (*i.e.* Quino checkerspot butterfly), this survey protocol will be carried out where applicable	
BIO-7: Construction activities have the potential to disturb or result in the mortality of special-status plant species.	Potentially Significant	**BIO-7a:** A qualified botanist shall conduct focused surveys for special-status plants during the period of identification for those species potentially occurring within undeveloped areas proposed for construction. **BIO-7b:** If special status plants are identified within 100 feet of proposed construction activities and these plants can be avoided by construction, the following protective measures would be implemented: • Exclusion fencing shall be constructed and maintained between the plants and the construction area to create an effective buffer against all construction-related activity.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• A qualified botanist shall hold tailgate environmental education sessions with construction personnel to inform them of special status plant species in the project area. These training sessions shall also include the locations of these sensitive resources, resource avoidance, permit conditions, and possible fines for violations of state or federal environmental laws. **BIO-7d:** If special status plants are identified within proposed construction areas and avoidance of these areas is infeasible, the following measures would apply: • The CDFG and USFWS, as applicable, shall be consulted to develop an acceptable plan for transplant, salvage, cultivation, or re-establishment of the species at suitable sites. In some cases involving State-listed plants, it may be necessary to obtain an incidental take permit under Section 2081 of the Fish and Game Code. The level of commitment may vary depending on the sensitivity of the species (its rarity or endangerment status), its prevalence in the area, and the current state of knowledge about overall population trends and threats to its survival.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• A detailed monitoring and reporting plan also will be a required component of any acceptable plan. Local jurisdictions (such as city or county parks or open space management, public works, or maintenance departments) may also need to coordinated to ensure that any new population locations are protected.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• For special-status plants, topsoil would be salvaged and stored prior to construction, then re-spread following construction and implementation of other appropriate site restoration measures (such as final grading, soil scarification, and erosion control). In those situations where post-construction monitoring indicates topsoil respreading has not resulted in successful re-establishment of special status plants, then seeds or cuttings of the species shall be gathered from nearby populations, and shall be used to in a cultivation and planting program that is appropriate for the horticultural requirements of the species. Re-introduction of the plant would be accomplished through sowing of seeds or planting of cultivated plants in the construction area or in another suitable location for which long-term site protection can be ensured. The restored area shall be comparable in size, soil type, exposure, dominant vegetation, and other critical habitat elements to the source population. Control of exotic weeds shall be implemented to prevent degradation of the habitat for native species. All components of the revegetation plan shall be subject to approval of the California Department of Fish and Game or U.S. Fish and Wildlife Service	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		BIO.7d: If special status plants are identified greater than 100 feet from proposed construction activities, including access routes, then standard avoidance measures shall be implemented prior to construction.	
BIO-8: Increased sediment and pollutant loads from site development in surface runoff and stormwater could decrease habitat quality for special-status fish species in drainages and other water bodies downstream from construction areas.	Potentially Significant	**BIO-8a:** Sempra Communications shall prepare and implement a SWPPP for the project as required by the appropriate Regional Water Quality Control Board (RWQCB) under its NPDES general permit. The SWPPP shall be updated as needed to reflect changes in the project design and site conditions. Development of the SWPPP is considered further in Section 4.8, Hydrology and Water Quality.	Less than Significant
BIO-9: Construction activities may result in the destruction or adverse modification of areas designated by USFWS and NMFS as critical habitat for listed plant and wildlife species.	Potentially Significant	**BIO-9a:** Wherever feasible, subsequent activities will be designed to avoid construction activities within or adjacent to critical habitat as designated by USFWS and NMFS. If avoidance is not feasible, informal consultation with USFWS and CDFG will determine a mitigation strategy to ensure that construction activities do not result in the destruction and adverse modification of the value of the habitat or affect the survival and recovery of any listed plant and wildlife species. Measures are likely to include seasonal restrictions, reduced construction corridors, pre-construction surveys, worker environmental education sessions, biological monitoring, and re-vegetation programs.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
BIO-10: Construction activities have the potential to adversely affect sensitive natural communities, including but not limited to perennial and alkali grasslands, coastal scrub, riparian forest, riparian woodland, riparian scrub, freshwater marsh (freshwater emergent marsh), saltmarsh (saline emergent wetland), and seasonal wetlands including vernal pools.	Potentially Significant	**BIO-10a:** Removal of sensitive natural communities will be avoided wherever feasible. If removal of this habitat is not feasible, only the minimum area necessary to complete the work will be subject to disturbance. Consultation with USFWS, CDFG, and other agencies, as applicable, will determine appropriate compensatory mitigation including habitat restoration, revegetation, conservation easements, and habitat replacement ratios both on-site and off-site.	Less than Significant
BIO-11: Construction activities could potentially result in direct impacts to waters of the United States or waters of the state, including wetlands.	Potentially Significant	**BIO-11a:** If construction activities will result in the placement of dredged or fill material into waters of the U.S. or waters of the State, the following measures will apply: • A formal delineation of jurisdictional features shall be conducted by a qualified biologist. The delineation shall be submitted to the U.S. Army Corps of Engineers for verification and a Department of the Army permit shall be obtained. In addition, Water Quality Certification shall be obtained from the Regional Water Quality Control Board. • If necessary, a Streambed Alteration Agreement shall be obtained from the California Department of Fish and Game. • Construction operations shall be conducted during the dry season to minimize erosion.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• The top layer of the drainage or wetland bottom shall be stockpiled and preserved during construction. After the pipeline has been installed, the stockpiled material shall be placed back into the drainage or wetland feature to return the beds to their original composition. • Crossings shall be oriented as close to perpendicular (90 degree angle) to the drainage or seasonal wetland as feasible. • Disturbed drainages and seasonal wetland habitat shall be revegetated with the appropriate plant species as soon as feasible after completion of construction activities. • Boring activities shall be closely monitored for loss of boring fluid. If a leak occurs, boring activities will be immediately halted until boring fluid is contained.	
BIO-12: Construction activities have the potential to result in adverse impacts to trees protected by local ordinances.	Potentially Significant	**BIO-12a:** Mitigation for project impacts to protected trees shall include measures for tree protection, revegetation, compensation and monitoring consistent with local ordinance requirements. Sempra Communications will develop and implement a Tree Protection Plan to prevent impacts to protected trees adjacent to construction areas, and a Tree Revegetation Plan to mitigate for protected trees removed during project construction.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
BIO-13: Construction activities have the potential to conflict with provisions of approved Habitat Conservation Plans.	Less than Significant	None required	Not Applicable
BIO-14: Construction activities on protected lands may conflict with policies and regulations established by land management agencies to protect biological resources in these areas.	Less than Significant	None required	Not Applicable
CULTURAL RESOURCES			
CUL-1: Possible adverse changes to the significance of historical resources. (applies specifically to historic buildings that may be affected by placing connections into historic structures thus altering their physical and aesthetic qualities or a change in their context/setting).	Potentially Significant	**CUL-1a:** Avoid historical building sites for installation of cable connections, prohibit structural or architectural modifications that would alter the architectural or aesthetic qualities of the building or design additions or modifications in such a manner as to be consistent with the architectural style.	Less than Significant
CUL-2: Possible substantial effects can occur to known, but unevaluated prehistoric and historic archaeological deposits from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas).	Potentially Significant	**CUL-2a:** Conduct pre-construction archaeological testing (or perform construction monitoring by a Native American and qualified archaeologist in built environments where ground surfaces are currently occluded by pavement and/or landscaping, and therefore may preclude field survey or resource evaluation/testing).	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
CUL-3: Possible substantial effects to potential, poorly recorded, or possibly badly disturbed prehistoric and historic archaeological deposits from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas).	Potentially Significant	**CUL-3a:** Conduct archaeological monitoring.	Less than Significant
CUL-4: Potential location or disturbance of unique paleontological resources during construction.	Potentially Significant	**CUL-4a:** Conduct paleontological monitoring.	Less than Significant
CUL-5: Possible substantial effects to human burials from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas).	Potentially Significant	**CUL-5a:** Implement Mitigation Measure CUL-3a.	Less than Significant
GEOLOGY, SOILS, MINERAL RESOURCES, AND SEISMICITY			

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
GEO-1: The project area is traversed by numerous active and potentially active faults. Displacement along any one of these faults could result in significant structural damage to proposed facilities and structures. Ground-shaking associated with the displacement of one of these faults could potentially expose project-related structures to seismic-related hazards, including localized fault rupture, liquefaction, and other related ground failures. With the implementation of standard engineering practices, this impact is considered less than significant	Less than Significant	None required	Not Applicable
GEO-2: Construction operations and periodic repair operations could result in temporary accelerated erosion and sedimentation from soil disturbance and vegetation removal.	Potentially Significant	**GEO-2a:** Implement **Mitigation Measures HYD.1a and BIO.8**	Less than Significant
GEO-3: The project area could be subjected to geologic hazards including differential settlement, expansive soils, and slope failure.	Less than Significant	None required	Not Applicable
HAZARDS AND HAZARDOUS MATERIALS			
HAZ-1: Possible temporary exposure to or release of hazardous materials during construction.	Potentially Significant	**HAZ-1a:** Ensure proper labeling, storage, handling, and use of hazardous materials.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		HAZ-1b: Report all significant releases or threatened releases of hazardous materials.	
		HAZ-1c: Implement dust abatement program.	
HAZ-2: The project could require disposal of potentially contaminated soils.	Potentially Significant	**HAZ-2a:** Conduct a list search of all subsequent activities requiring excavation.	Less than Significant
		HAZ-2b: Characterize excavated materials for disposal.	
		HAZ-2c: Test groundwater.	
HAZ-3: Possible exposure of the public or environment to hazardous materials sites.	Less than Significant	None required.	Not applicable.
HAZ-4: Possible temporary limited emergency access.	Less than Significant	None required.	Not applicable.
HAZ-5: Potential safety risk to employees from high voltage.	Potentially Significant	**HAZ-5a:** Implement Mitigation Measure HAZ-1c.	Less than Significant
HAZ-6: Possible Safety Hazard Due to Helicopter or Other Aircraft in the Vicinity of Public or Public-Use Airport.	Potentially Significant	**HAZ-6a:** Undertake all flight operations in accordance with federal air administration safety and flight regulations.	Less than Significant
HAZ-7: Possible Temporary Exposure of People or Structures to Wildland Fires.	Potentially Significant	**HAZ-7a:** Prepare a fire prevention and management plan.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
HYDROLOGY AND WATER QUALITY			
HYD-1: Installation of fiber optic cable facilities could cause erosion and transport of sediments to local water resources during construction activities.	Potentially Significant	**HYD-1a:** The following Installation of temporary erosion control devices and water diversion techniques shall be implemented during construction to minimize erosion and sedimentation in streams that are flowing during construction. **HYD-1b:** Implement Mitigation Measure BIO-11a.	Less than Significant
HYD-2: Possible long-term erosion from decreased channel stability.	Potentially Significant	**HYD-2a:** Implement Mitigation Measures BIO-2a, BIO-2b, and BIO-2c.	Less than Significant
HYD-3: Possible water quality degradation from accidental spills of construction materials and equipment fluids.	Potentially Significant	**HYD-3a:** Spill prevention and mitigation practices summarized in the following text will be enacted.	Less than Significant
HYD-4: Possible water quality degradation and siltation from accidental seepage or spillage of drilling fluids into streams.	Potentially Significant	**HYD-4a:** The following mitigation measure will be implemented to minimize the potential for drilling fluid seepage to streams and to ensure containment of drilling fluids within the drilling circulation system.	Potentially Significant
HYD-5: Excavation during project construction could encounter groundwater and require dewatering. Discharge of dewatered water could adversely affect surface water quality.	Less than Significant	No mitigation is required	Not Applicable
HYD-6: Regeneration and OP-AMP stations may potentially be sited within a 100-year flood zone.	Less than Significant	No mitigation is required	Not Applicable

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
LAND USE AND PLANNING			
LUP-1: The project area includes numerous jurisdictions throughout California. The implementation of subsequent activities could result in possible conflicts with applicable local land use plans, policies, and regulations.	Potentially Significant	**LUP-1a:** The applicant shall comply with local, state, and federal plans, policies, and regulations. Compliance will be ensured through the implementation of the following systematic process for each proposed activity prior to construction:	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• During the initial design stages of subsequent activities, the applicant shall consult with local planning staff to determine any required permits, and to assess the activity's consistency with relevant local land use plans, policies, zoning, and relevant ordinances. Preferred alignments for fiber optic facilities installation include previously disturbed right-of-ways in areas designated on applicable City and County Plans for industrial, office/professional, commercial, highway commercial, or public uses. Subsequent activities shall limit or avoid to the extent feasible interactions with residential, recreational, park and natural preserves (e.g. federal, state, county, or other natural areas). The applicant shall refer to **Appendix H** for guidance on applicable land use documentation (General Plan Land Use Element) for each local jurisdiction within the project area. In consultation with the appropriate planning agency, the following plans should be considered for applicability to subsequent activities:	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		– Community, Specific, and/or Master Plans – Local Coastal Plan (if the activity enters the coastal zone) – Airport Land Use Plan (if the activity within 2 miles of an airport) – Infrastructure Improvement Plans – Regional Plans – Habitat Conservation Plan (HCP) and/or Natural Community Conservation Plan (NCCP) (the applicant shall consult with the regulating body to ensure project compliance.) The purpose of this consultation and plan review is to ensure conformity with local design, planning, and performance standards. The consistency analysis will also be used to determine which jurisdictions will require a condition use permit (CUP) or other discretionary action. • In addition to consultation with local planning departments, the applicant shall also consult with local public works departments prior to the installation of any fiber optic cable facilities to determine the location, timing, and status of local infrastructure improvements. If possible, subsequent activities shall be designed for installation concurrently with other planned infrastructure improvements to avoid multiple disturbances within public rights of way.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Prior to the approval of subsequent activities, the applicant shall provide the CPUC with a report documenting the results of the consultation process with each relevant local jurisdiction as part of their work plan (Appendix B). The report shall include a list of local agencies consulted, the name of individuals consulted with each agency (including contact information), land use documents reviewed and the activity's consistency with the applicable plans, policies and ordinances.	
NOISE			
NOI-1: Subsequent activities could generate noise levels in excess of local standards during project construction and operation.	Potentially Significant	**NOI-1a:** Sempra Communications would require construction contractors to comply with the construction hours limitations and construction equipment standards set forth in the local general plan noise element and the noise ordinance of all applicable jurisdictions of cities and counties. For construction in those jurisdictions where there are no specific construction-related standards, Sempra Communications would require its contractors to limit noisy construction activity to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. **NOI-1b:** To reduce daytime noise impacts due to construction, Sempra Communications shall require construction contractors to implement the following measures:	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Equipment and trucks used for construction shall utilize the best available noise control techniques (*e.g.*, improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible); • Impact tools (*e.g.*, jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible; and • Construction equipment shall be located as far from sensitive receptors as possible. **NOI-1c:** To the extent feasible, avoid use of helicopters for stringing OPGW cable on transmission towers in residential areas and other sensitive land uses.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		NOI-1d: If for any reason, construction activities adjacent to any noise sensitive receptors is expected to last more than a week, Sempra Communications shall establish a process for responding to and tracking complaints pertaining to construction noise with the following components: • A procedure for notifying the local City/County Building Division staff and Police Department; • A plan for posting signs on-site pertaining to permitted construction days and hours and complaint procedures and who to notify in the event of a problem; • A listing of telephone numbers (during regular construction hours and off-hours); and • The designation of a construction complaint manager for the project.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		NOI-1e: Upon determining the OP-AMP locations along an alignment, a more detailed, OP-AMP site specific noise analysis shall be conducted by a qualified noise analyst to determine the impact of the operation of HVAC equipment and the backup generators on the ambient noise level at nearby sensitive land uses. If the analysis indicates that the operational noise levels are expected to exceed the local noise standards, site-specific mitigation measures recommended by the analyst shall be implemented. The measures may not be limited to the following recommendations but could include some or all of the recommendations to reduce the impact on sensitive receptors to a less than significant level. Sempra Communications shall also be required to design the OP-AMP sites keeping in mind the following measures. • Modify the air conditioning units or redesign the facility layout such that the air conditioning units would face away from sensitive receptors, to the maximum extent possible.. • Install generators that provide an equivalent noise reduction greater than the model assumed as the basis for this analysis so as to meet the local noise standards. The required equivalent noise reduction would be determined based on the results of the site-specific noise analysis,	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Restrict the hours during which routine tests of the backup generators can be conducted to the less noise sensitive daytime hours.	
NOI-2: Subsequent activities could expose sensitive receptors to localized groundborne vibration and groundborne noise.	Potentially Significant	**NOI-2:** Where OP-AMP stations would be located near sensitive land uses, Sempra Communications would install generators on top of isolation pads to reduce the impact of groundborne vibration and noise.	Less than Significant
NOI-3: Subsequent activities could result in permanent increases in ambient noise levels from use of equipment at OP-AMP stations.	Potentially Significant	**NOI-3:** Sempra Communications would implement the measures listed under Mitigation Measure NOI-1e.	Less than Significant
NOI-4: Subsequent activities could result in temporary and intermittent noise increases during project construction.	Less than Significant	None required	Not Applicable
NOI-5: Subsequent activities could be located within an airport land use plan or where such a plan has not been adopted, within two miles of a public use airport and could expose people residing or working in the project area to excessive noise levels.	Less than Significant	None required	Not Applicable
NOI-6: Subsequent activities could be located within the vicinity of a private airstrip and would expose people residing or working in the project area to excessive noise levels.	Less than Significant	None required	Not Applicable

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
RECREATION			
REC-1: Use of recreational facilities as staging or other work areas could cause or accelerate the physical deterioration of the facility.	Potentially Significant	**REC-1:** Sempra Communications shall avoid impacts on recreational facilities by maintaining all work areas within existing utility or roadway rights-of-way, unless required or otherwise authorized by the local city or county parks department or equivalent government entity. If work within a recreational facility is authorized, cleanup and repair of the facility will follow the requirements of the governing agency, in addition to the requirements of this Program EIR.	Less than Significant
REC-2: The project would intermittently and temporarily disrupt existing nearby recreational facilities for the duration of construction.	Less than Significant	None required	Not Applicable
TRANSPORTATION AND TRAFFIC			
TRANS-1: Installation of fiber optic cable facilities within or across streets would reduce the number of, or the available width of, travel lanes on roads, resulting in temporary disruption of traffic flows and increases in traffic congestion.	Less than Significant	None required	Not Applicable
TRANS-2: Construction related to fiber optic cable facility installation could result in short-term increases in vehicle trips by vehicular construction activities and construction workers.	Less than Significant	None required	Not Applicable

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
TRANS-3: OPGW installations could utilize helicopters during construction which may temporarily 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.	Less than Significant	None required	Not Applicable
TRANS-4: Installation of fiber optic facilities within roadways and railroad rights of way could temporarily increase the potential for accidents.	Less than Significant	None required	Not Applicable
TRANS-5: Installation of fiber optic facilities within or across streets could affect emergency access.	Less than Significant	None required	Not Applicable
TRANS-6: Construction related to installation of fiber optic facilities could generate a temporary demand for parking spaces for construction worker vehicles; in addition, construction operations could temporarily displace existing on-street parking on a number of streets.	Less than Significant	None required	Less than Significant
TRANS-7: Installation of fiber optic facilities could temporarily disrupt bus service throughout the project area.	Less than Significant	None required	Less than Significant
UTILITIES AND SERVICE SYSTEMS			
UTL-1: Installation of fiber optic facilities could cross or coincide with existing utility lines and could effect and disrupt delivery of those utility services.	Less than Significant	None required	Not Applicable

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SEMPRA COMMUNICATIONS APPLICATION FOR A CPCN

ENVIRONMENTAL IMPACT	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
UTL-2: Fiber optic cable facilities installation along transmission tower lines may temporarily require deenergizing the lines and interrupting customer service.	Less than Significant	None required	Not Applicable

CHAPTER 2.0

INTRODUCTION

2.1 PROJECT OVERVIEW

This document describes a proposal by Sempra Communications to provide telecommunications infrastructure and services to selected markets throughout California using state-of-the-art fiber optic cable technology. The proposal does not address any specific construction project, network, or system but instead proposes a Telecommunications Program . The proposed Telecommunications Program is intended as a guide for planning and implementing telecommunications infrastructure and providing services to customers in primarily urbanized areas throughout 15 counties in California. The project proposes several methods for installation of fiber optic cable and related facilities including open trench, plow, horizontal directional bore, aerial attachments, and transmission tower attachments (i.e., replacement of optical ground wiring).

On February 11, 2000, Sempra Communications applied to the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity (CPCN) to operate as a facilities-based reseller of telecommunications services on a statewide basis (Application No. 00-02-020). In D.00-06-019 (June 8, 2000), the Commission granted the joint motion of Sempra Communications and the Commission's Office of Ratepayer Advocates (ORA) requesting that Sempra Communications be granted limited facilities-based local exchange authority only. The decision further stated that authorization for expanded facilities-based authority involving construction work for infrastructure installation would require conformance with California Environmental Quality Act of 1970 (CEQA) requirements prior to approval by the Commission.

To address the Commission's requirement for CEQA compliance, on June 8, 2000, Sempra Communications filed a Supplemental Proponent's Environmental Assessment (Supplemental PEA) that had been attached as Exhibit 2 to its original application for a CPCN. Sempra Communications filed its Supplemental PEA in accordance with CPUC CEQA Rule 17.1 to address specifically the affect on the environment that could result from Sempra Communications' statewide application for a full facilities-based CPCN. Sempra Communications did not address any specific construction project in its Supplemental PEA, but provided a programmatic evaluation of the types of facilities, construction projects, construction methods, locations, and operations likely to be undertaken by Sempra Communications, and the potential for those activities to affect the environment.

2.2 CEQA LEAD AND RESPONSIBLE AGENCIES

The project proposed by Sempra Communications qualifies as a "project" under the State CEQA Guidelines. An activity is considered a project if it requires issuance of a lease, permit, license, certificate, or other entitlement by a public agency. The CPUC is designated the lead agency for approval of this project under CEQA by virtue of its discretionary authority to issue a CPCN, as requested by Sempra Communications (CEQA Guidelines Sec. 15378(a); California Public Resources Code Sec. 21065).

As the Lead Agency in this matter, the CPUC determined that CEQA required preparation of an Environmental Impact Report (EIR). The CPUC chose to develop a Program EIR to analyze potential impacts of program level implementation and thereby establish a process, set performance standards, and develop mitigation measures that will apply to subsequent activities proposed by the applicant.

The proposed project area encompasses numerous jurisdictions and may require permits or approvals from various federal, state, and local agencies in order to be fully implemented. These agencies may be considered responsible agencies under CEQA. A responsible agency is an agency other than the lead agency that has a legal responsibility for approving a project, or any portion of a project. The responsible agency must actively participate in the lead agency's CEQA process by reviewing the document and using it for the responsible agency's actions on the project. Thus, the responsible agencies would likely use this Program EIR to achieve CEQA compliance when issuing permits (e.g., encroachment permits) required to authorize future actions proposed under this Telecommunications Program. In addition, the responsible agencies may require additional permit conditions consistent with their permitting authority.

2.3 CEQA PROCESS AND APPROACH TO ANALYSIS

This EIR has been prepared as a Program EIR, pursuant to Section 15168 of the CEQA Guidelines. The CPUC chose to develop a Program EIR to efficiently evaluate the Telecommunications Program proposed by the applicant (Sempra Communications). As such, it analyzes (at a program level) the effects of project implementation that could be anticipated to occur as a result of the CPUC approval of the CPCN. This Program EIR identifies the potential environmental effects of likely future scenarios (i.e., program implementation), sets performance standards, and provides mitigation(s) and a compliance process for avoiding or reducing potentially significant impacts to less-than-significant levels. Each subsequent activity would be subject to an environmental evaluation process at the time it is proposed (consistent with CEQA Guidelines Section 15168). No new environmental impact report would be required unless the proposed activity would result in new or substantially more severe environmental effects than those disclosed herein.

The document analyzes the significance of potential impacts from construction, maintenance, and operation of the proposed project and identifies the mitigation measures or processes needed to avoid or reduce each potential impact identified. Subsequent activities and related construction

would be confined to the geographical scope of the project area as described and illustrated in the project description (chapter 3) and evaluated in this document. No unauthorized construction requiring CEQA review would be permitted in areas beyond the scope of this document and outside the project area.

2.4 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The objective of this Program EIR is to evaluate the potential impacts of the proposed project and to establish a clear process for implementing mitigation measures and ensuring mitigation compliance. This EIR also includes a process for CPUC CEQA evaluation (using this Program EIR) of program activities, e.g., installation of fiber optic facilities within the project area, that are proposed in the future consistent with the CPCN. Subsequent activities may only be undertaken after an evaluation occurs of whether the impacts of those activities were covered by this Program EIR, and if so, mitigation measures are matched with those activities. This Program EIR ensures CEQA compliance for the CPUC (lead agency) to issue a full facilities-based CPCN, consistent with this Program EIR. This Program EIR also ensures CEQA compliance for responsible agencies issuing permits and approvals for subsequent activities, and it provides a process for determining appropriate mitigation measures and monitoring when specific activities are identified. The Program EIR does not provide CEQA compliance for unauthorized projects outside the scope of the document or limit the authority of the responsible agencies issuing other permits and approvals for subsequent activities.

2.5 PUBLIC AND AGENCY CONSULTATION

NOTICE OF PREPARATION

In accordance with CEQA Guidelines §15082, the CPUC Staff prepared a Notice of Preparation (NOP) for this Program EIR, which was mailed on April 28, 2002, to local, State, and Federal agencies, and to the State Clearinghouse for a 30 day review period that ended on May 22, 2002. The text of the NOP may be viewed on the project website (http://www.semprafiber.net) and in Appendix C.

The NOP provided a general description of the project including the activities that are proposed to implement the Telecommunications Program and an overview of the project area within which subsequent activities are anticipated, and a summary of the environmental issues under consideration for this document. Responses from these agencies and organizations helped to determine relevant environmental issues associated with the project that are addressed and analyzed in the Program EIR. Those responses may be viewed in Appendix D.

AGENCY INFORMATION MEETINGS

Although not required under CEQA, the CPUC Staff will conduct agency information meetings during circulation of the Draft Program EIR, to provide the government agencies the opportunity

to comment on the environmental issues identified, and to comment on the proposed process for subsequent activities proposed under the scope of the Program EIR.

DRAFT EIR

This document constitutes the Draft Program EIR. It contains a description of the project, description of the environmental setting, identification of project and cumulative impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives.

FINAL EIR CERTIFICATION

Written and oral comments received in response to the Draft Program EIR will be addressed in a Response to Comments document that, together with the Draft Program EIR, will constitute the Final Program EIR. The CPUC will then consider certification of the Final Program EIR. Upon Program EIR certification, the applicant may develop specific projects for submittal to the CPUC, and the CPUC may proceed with project-approval actions.

2.6 REVIEW AND APPROVAL PROCESS FOR SUBSEQUENT ACTIVITIES

The CPUC developed the Program EIR to set forth a process-oriented approach with performance standards for analyzing potential impacts from construction of telecommunications infrastructure and for identifying and implementing required mitigation measures. The purpose of this Program EIR is to establish a clear process for obtaining approval for subsequent activities proposed by Sempra Communications that require construction activities and to ensure compliance with the mitigation measures identified in the Program EIR. The process proposed by the CPUC for subsequent activities complies with CEQA's goals of efficient and expeditious environmental protection while facilitating the goals of the Commission, state, and federal government in furthering telecommunications competition and consumer choice in a fair and efficient manner. Review of subsequent activities will be conducted according to guidelines set forth in Appendix A.

Sempra Communications would not begin construction on any subsequent activities without the CPUC first authorizing the construction of such facilities by issuance of a Notice to Proceed (NTP) pursuant to compliance with the Program EIR. Sempra Communications must submit a checklist (provided in Attachment B of Appendix A) documenting the evaluation of the environmental effects of the proposed work plan to determine whether the environmental effects of the work plan were covered in the Program EIR and which mitigation measures developed within the Program EIR would be applicable to and required for implementation of the work plan. However, if the checklist indicates that the environmental effects were not covered in the program EIR, then Sempra Communications must either revise the work plan to avoid such effects (and revise the checklist as appropriate for submission) or submit a complete application (and all accompanying documents) to modify the CPCN.

2.7 ORGANIZATION OF THIS DOCUMENT

This Draft EIR has been organized into the following sections.

Chapter 1 - Summary: The Summary, which precedes this introduction, summarizes the Program EIR by providing an overview of the project, the environmental impacts that would result from the project, the mitigation measures identified to reduce or eliminate these impacts, and the alternatives to the project.

Chapter 2 -- Introduction: This chapter introduces the project overview, the lead agency, and responsible agencies; defines the scope for this Program EIR; outlines how the unique aspects of this project are analyzed under CEQA; and discusses the subsequent process for authorizing specific future action(s).

Chapter 3 -- Project Description: This chapter discusses the project objectives; provides general information on the project location; describes the project's characteristics; and summarizes assumptions about implementation of the proposed project.

Chapter 4 -- Environmental Setting, Impact, and Mitigation: This chapter describes the existing setting, discusses the environmental impacts of the project, describes cumulative impacts, and identifies mitigation measures for the environmental impacts examined in this Program EIR. The primary issue areas addressed in the Program EIR are land use and applicable land use plans and policies; traffic and circulation; parks, recreation, and open space; biology; hydrology, water quality, and flooding; geology and soils; air quality; noise; aesthetics; and biological and cultural resources. Within each impact section contained in Chapter 4, potential impacts are identified in bold type. Following the discussion of each stated impact, feasible measures that could avoid or alleviate the severity of identified impacts are identified. Mitigation measures that could in themselves cause significant impacts are also identified. Where mitigation measures are proposed as part of the project, these are identified as such.

Chapter 5 -- Impact Overview: This chapter summarizes discussions of cumulative impacts, unavoidable significant impacts, and impacts found to be less than significant.

Chapter 6 -- Alternatives: This chapter presents a reasonable range of alternatives to the proposed project, provides discussion of the environmental impacts associated with each alternative, compares the relative impacts of each alternative to those of the project and the other alternatives, and discusses the relationship of each alternative to the project objectives.

Chapter 7 -- Report Preparation: This chapter identifies persons and organizations consulted during report preparation, and lists persons who contributed to report preparation.

CHAPTER 3

PROJECT DESCRIPTION

This chapter of the document describes the objectives and characteristics of Sempra Communications' Telecommunications Program (the "Project") to provide a programmatic approach to developing telecommunications infrastructure and services to selected markets throughout California using state-of-the-art fiber optic cable technology. The Project and its geographic scope are described by expanding on the basic information included in the Program Environmental Impact Report (Program EIR) Introduction and by providing the primary description of this program-level EIR.

3.1 THE PROPOSED PROJECT

3.1.1 PROJECT PURPOSE AND NEED

Sempra Communications has a need to increase the capacity of client fiber optic facilities within California. The installation of fiber optic facilities services the public interest through increased and more rapid access to void and data communications. The Internet's explosive growth demands the continuing evolution of network infrastructure. Over the past several years there has been substantial investment in fiber optic telecommunications infrastructure dramatically increasing the capacity of Internet backbones. Metropolitan areas, however, have received a significantly less investment in access to these backbones, creating a major network bottleneck effect. The purpose of this proposed project is to satisfy the time-sensitive need for increased telecommunication capacity, particularly to the end user.

3.1.2 PROJECT LOCATION

Sempra Communications proposes to develop telecommunications infrastructure for customers within geographical boundaries that encompass primarily urbanized metropolitan areas in 15 counties throughout the State of California. Urbanized, densely populated areas within the 15 counties were identified utilizing aerial photography, incorporated boundaries and U.S. Census 2000 data[1] to identify urbanized areas. **Table 3-1** lists each of the counties and the municipalities included in the geographic scope for the Program. These areas are further illustrated in **Figures 3-1 through 3-15**.

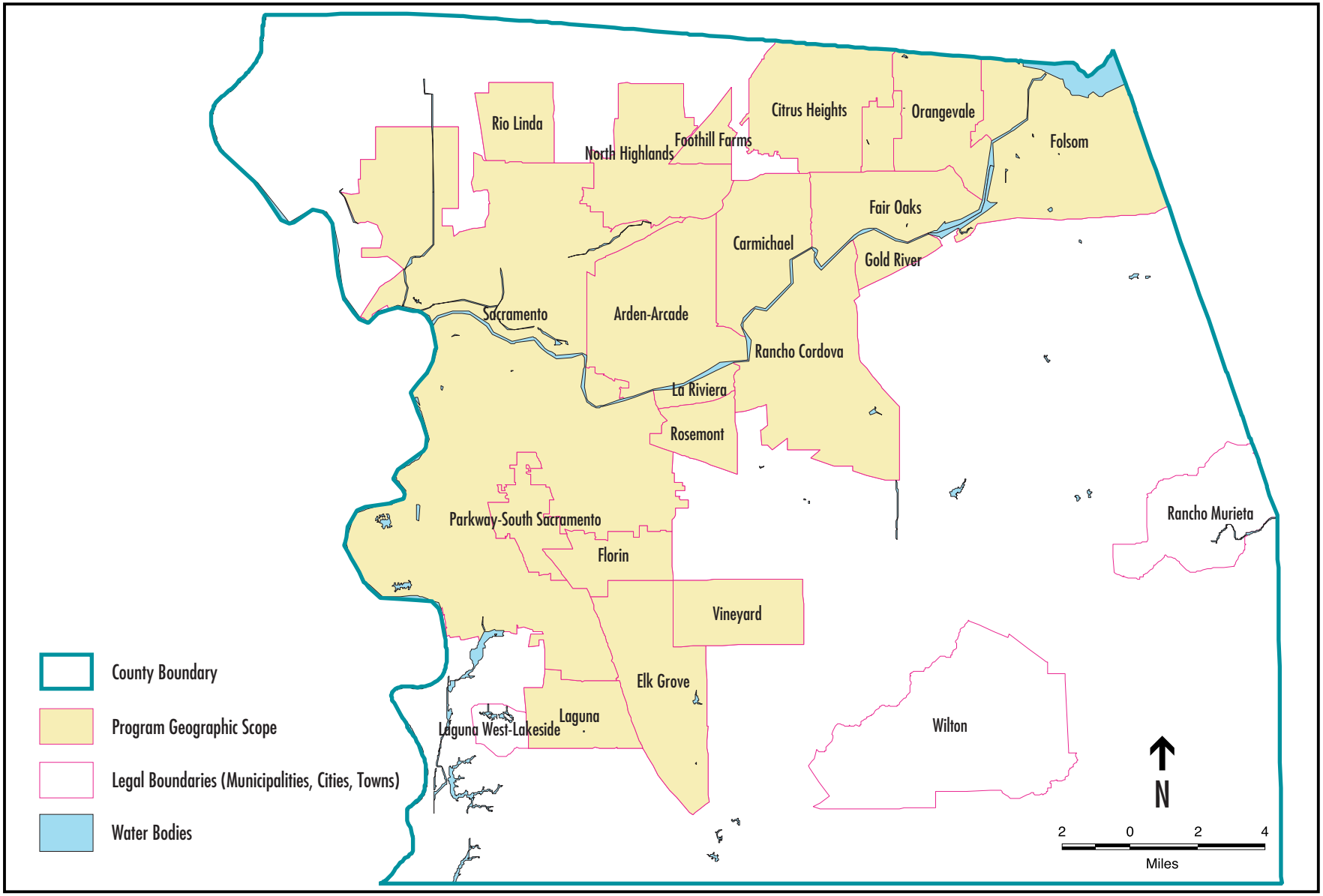
[1] According to U.S. Census Bureau, Census 2000 data, an urbanized area consists of densely settled territory that contains 50,000 or more people. The U.S. Census Bureau delineates urbanized areas to provide a better separation of urban and rural territory, population, and housing in the vicinity of large places.

TABLE 3-1
SEMPRA COMMUNICATIONS' TELECOMMUNICATIONS PROGRAM
PROJECT AREA: COUNTIES AND MUNICIPALITIES

County	Incorporated and Unincorporated Municipalities			
Alameda	Alameda Albany Ashland Berkeley Castro Valley	Dublin Emeryville Fairview Fremont Hayward	Livermore Newark Oakland Piedmont Pleasanton	San Leandro San Lorenzo Union City
Contra Costa	Alamo Antioch Bay Point Bayview Blackhawk Brentwood Clayton Clyde Concord Crockett	Danville Diablo East Richmond Heights El Cerrito El Sobrante Hercules Kensington Knightsen Lafayette Martinez	Moraga Mountain View Oakley Orinda Pacheco Pinole Pittsburg Pleasant Hill Richmond Rodeo	San Pablo San Ramon Tara Hills Vine Hill Waldon Walnut Creek
Fresno	Clovis	Fresno		
Imperial	Calexico	El Centro	Imperial	
Los Angeles	Agoura Hills Alhambra Altadena Arcadia Baldwin Park Bell Bell Gardens Bellflower Beverly Hills Bradbury Burbank Calabassas Carson Cerrito City of Industry Compton Culver City Downey Duarte East La Mirada	El Monte El Segundo Florence Gardena Glendale Graham Hacienda Heights Hawaiian Gardens Hawthorne Hidden Hills Inglewood Irwindale La Canada-Flintridge La Crescenta La Habra Heights La Mirada La Puente Ladera Heights Lakewood Lennox	Long Beach Los Angeles Los Nietos Lynwood Manhattan Beach Marina del Rey Monrovia Monterey Park Montrose Norwalk Palos Verdes Estates Paramount Pasadena Rancho Palos Verdes Rolling Hills Rolling Hills Estates Rosemead Rowland Heights San Fernando San Gabriel	San Marino Santa Fe Springs Santa Monica Sierra Madre Signal Hill South Pasadena South Whittier South Gate Temple City Torrance Valinda Vincent West Carson West Hollywood Westlake Village Westmont Whittier Willowbrook
Marin	Belvedere Corte Madera Fairfax Kentfield	Larkspur Marinwood Mill Valley Novato	Ross San Anselmo San Rafael Sausalito	Strawberry Tiburon

TABLE 3.1 (continued)
SEMPRA COMMUNICATIONS' TELECOMMUNICATIONS PROGRAM
PROJECT AREA: COUNTIES AND MUNICIPALITIES

County	Incorporated and Unincorporated Municipalities			
Orange	Aliso Viejo Anaheim Brea Buena Park Colo de Ceza Costa Mesa Cypress Dana Point Foothill Ranch Fountain Valley	Fullerton Garden Grove Huntington Beach Irvine La Habra La Palma Laguna Beach Laguna Hills Laguna Niguel Laguna Woods	Lake Forest Los Alamitos Los Flores Mission Viejo Newport Beach Orange Placentia Portola Hills Rancho Santa Margarita Rossmoor	San Clemente San Juan Capistrano Santa Ana Seal Beach Stanton Tustin Tustin Foothills Villa Park Westminster Yorba Linda
Riverside	Corona El Cerrito Glen Avon	Highgrove Home Gardens Mira Loma	Norco Pedley Riverside	Rubidoux Sunnyslope
Sacramento	Arden-Arcade Carmichael Citrus Heights Elk Grove Fair Oaks	Florin Folsom Foothill Farms Gold River La Riveria	Laguna North Highlands Orangevale Parkway Rancho Cordova	Rio Linda Rosemont Sacramento South Sacramento Vineyard
San Bernardino	Bloomington Chino Chino Hills Colton Grand Terrace	Fontana Highland Loma Linda Montclair	Muscoy Ontario Rancho Cucamonga Redlands	Rialto San Antonio Heights San Bernardino Upland
San Diego	Bostonia Carlsbad Chula Vista Coronado Del Mar El Cajon Encinitas	Escondido Fairbanks Ranch Fallbrook Hidden Meadows Imperial Beach La Mesa La Presa	Lake San Marcos Lakeside Lemon Grove National City Oceanside Poway Rancho San Diego	Rancho Santa San Marcos San Diego Santee Solana Beach Spring Valley Vista
San Francisco	San Francisco			
San Mateo	Atherton Belmont Brisbane Broadmoor Burlingame Colma Daly City	East Palo Alto Emerald Lake Hills Foster City Half Moon Bay Hillsborough Menlo Park	Millbrae Moss Beach North Fair Oaks Pacifica Portola Valley Redwood City	San Bruno San Carlos San Mateo South San Francisco West Menlo Park Woodside
Santa Clara	Burbank Campbell Cupertino Gilroy	Los Altos Los Gatos Morgan Hill Mountain View	Palo Alto San Jose San Martin Santa Clara	Saratoga Seven Trees Stanford Sunnyvale
Santa Cruz	Aptos Capitola Freedom	Live Oak Opal Cliff Rio del Mar	Santa Cruz Soquel Twin Lakes	Watsonville

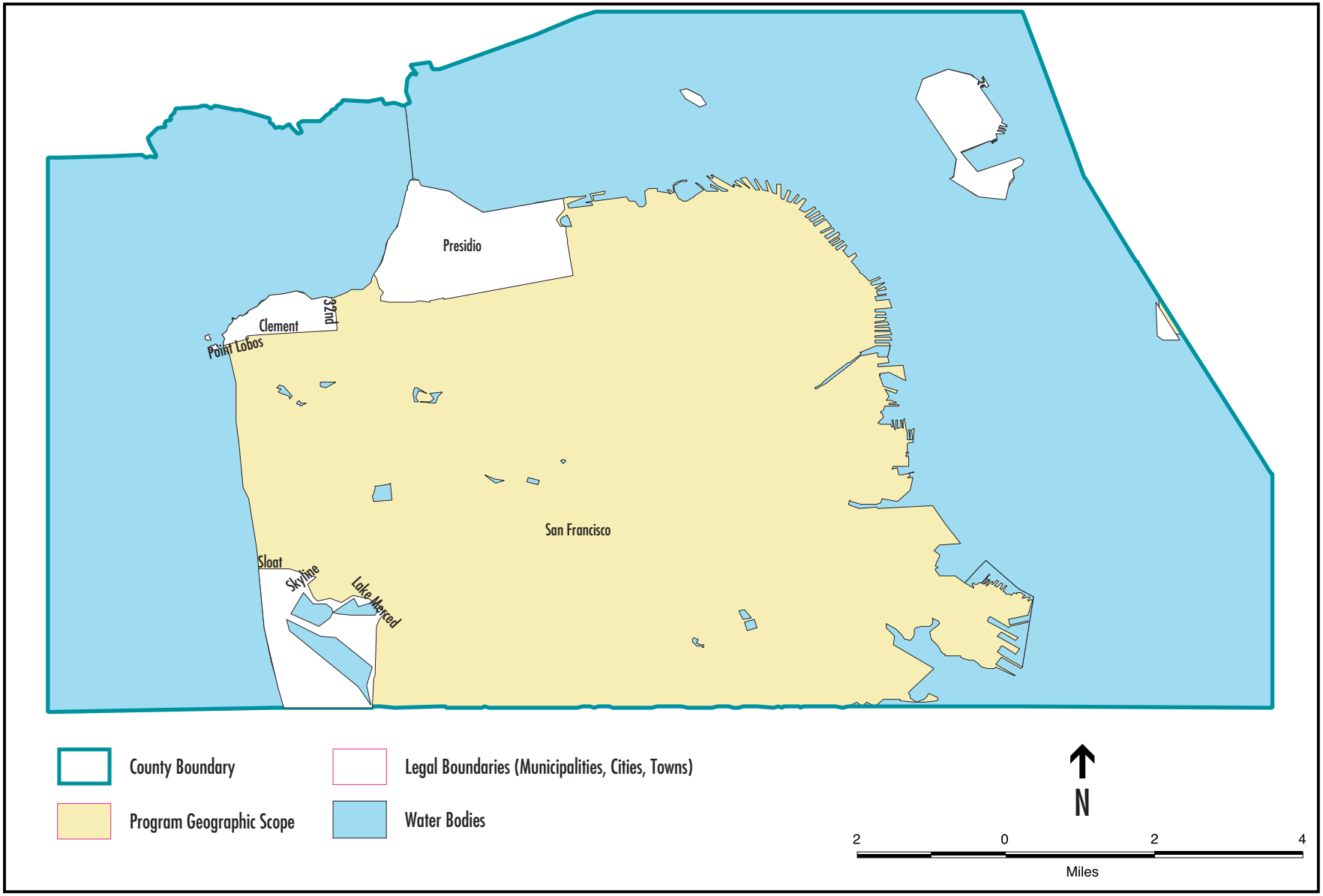


SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-1
Sacramento County
Project Area

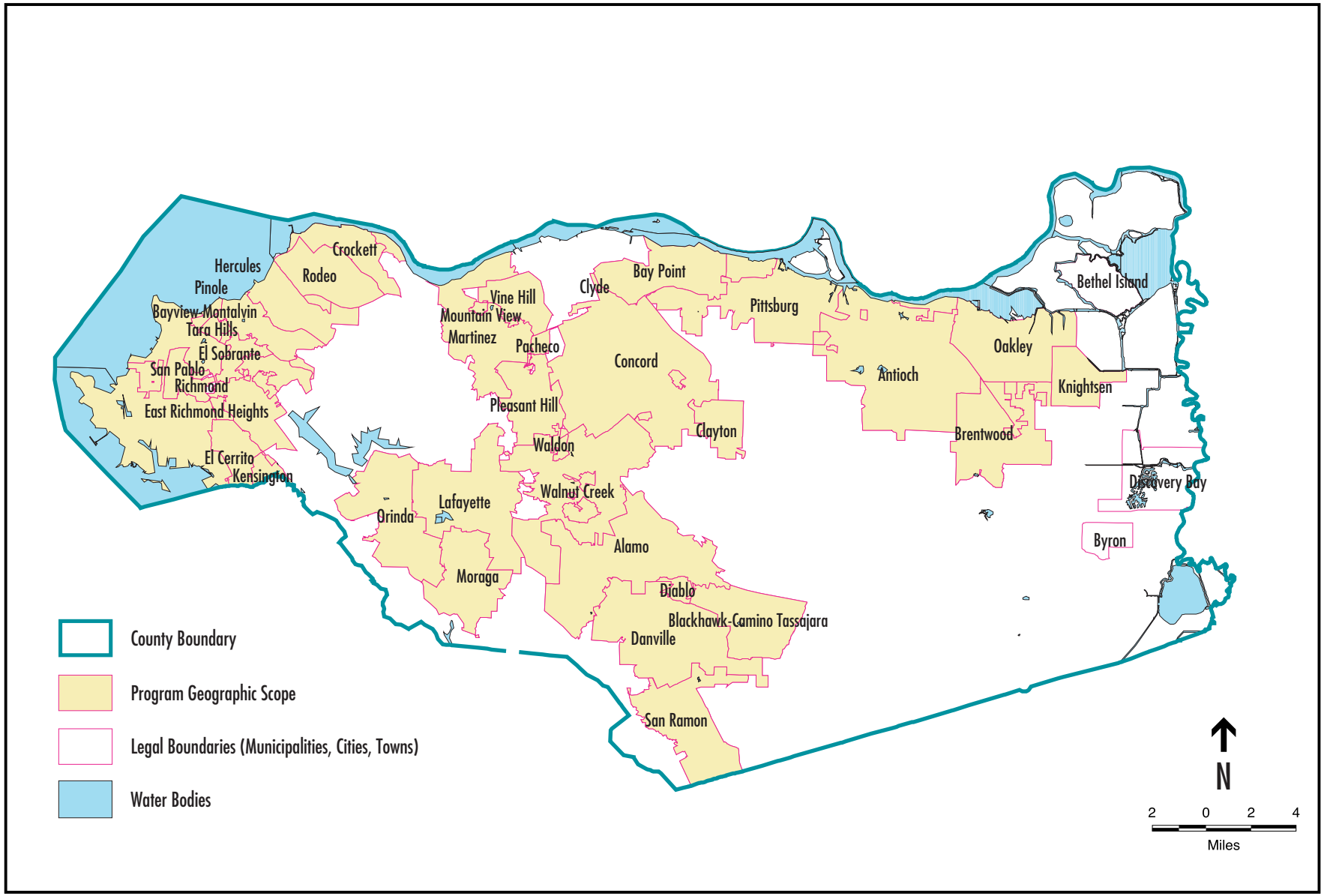
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-2
Marin County
Project Area



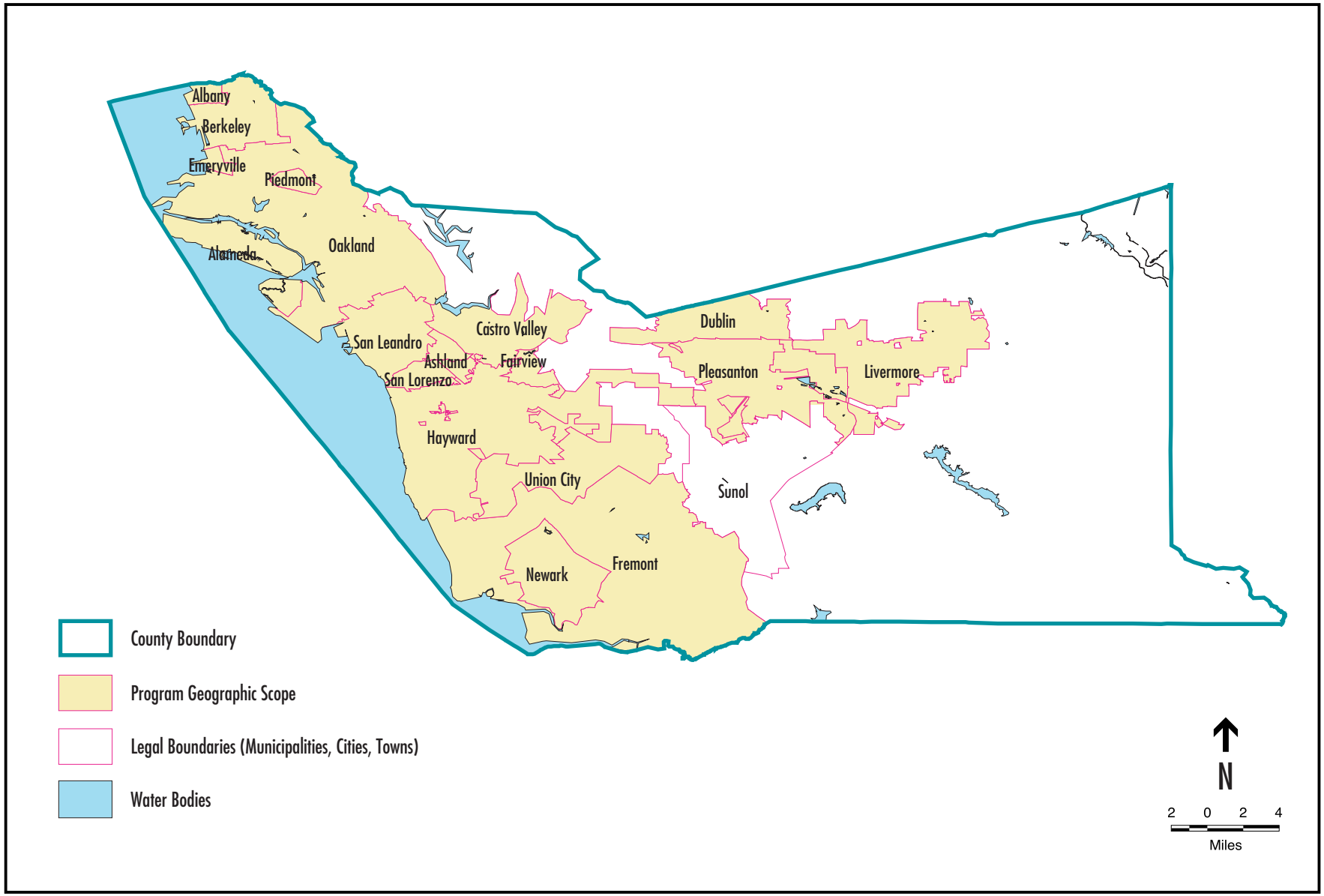
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-3
San Francisco County
Project Area



SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-4
Contra Costa County
Project Area

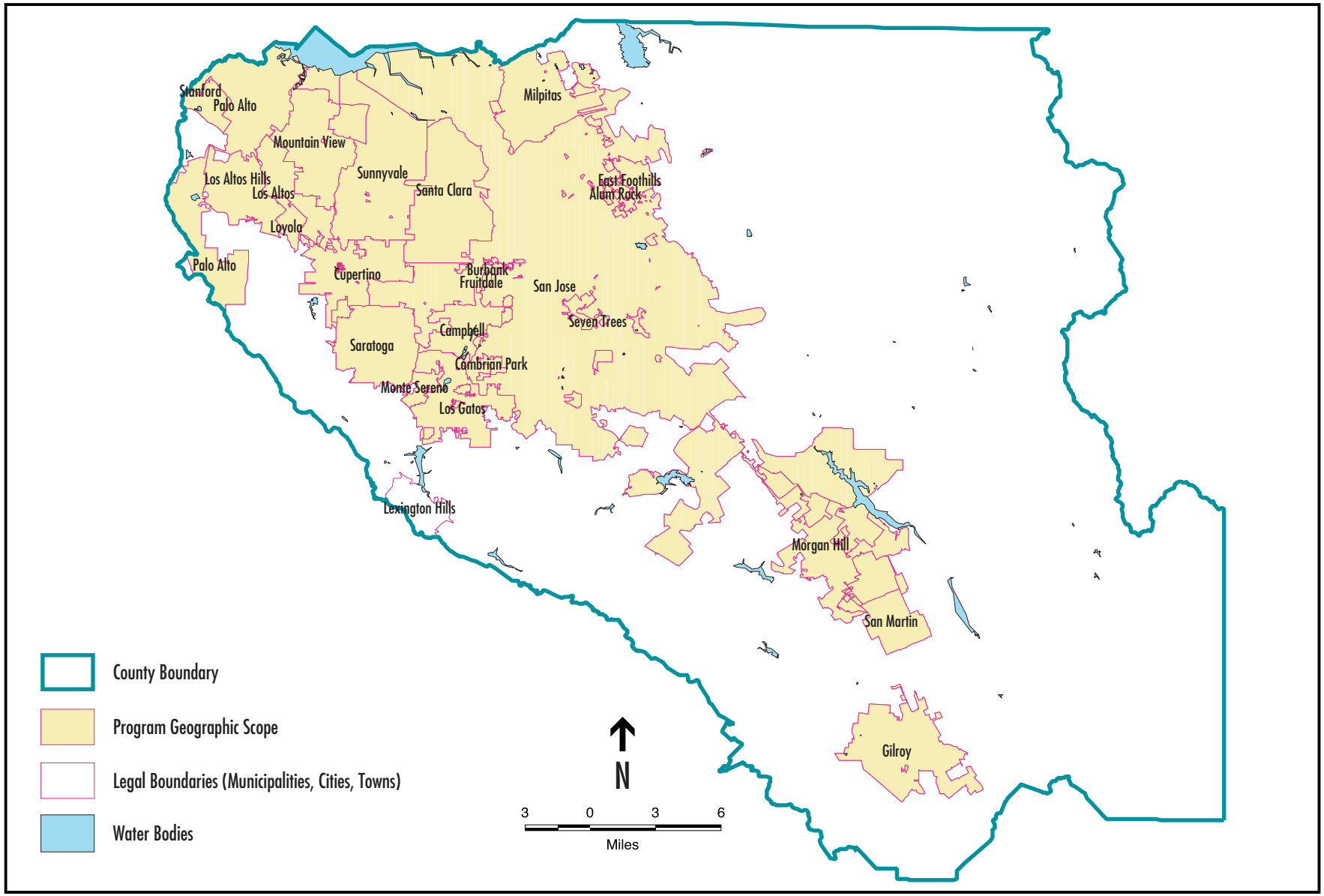


SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-5
Alameda County
Project Area

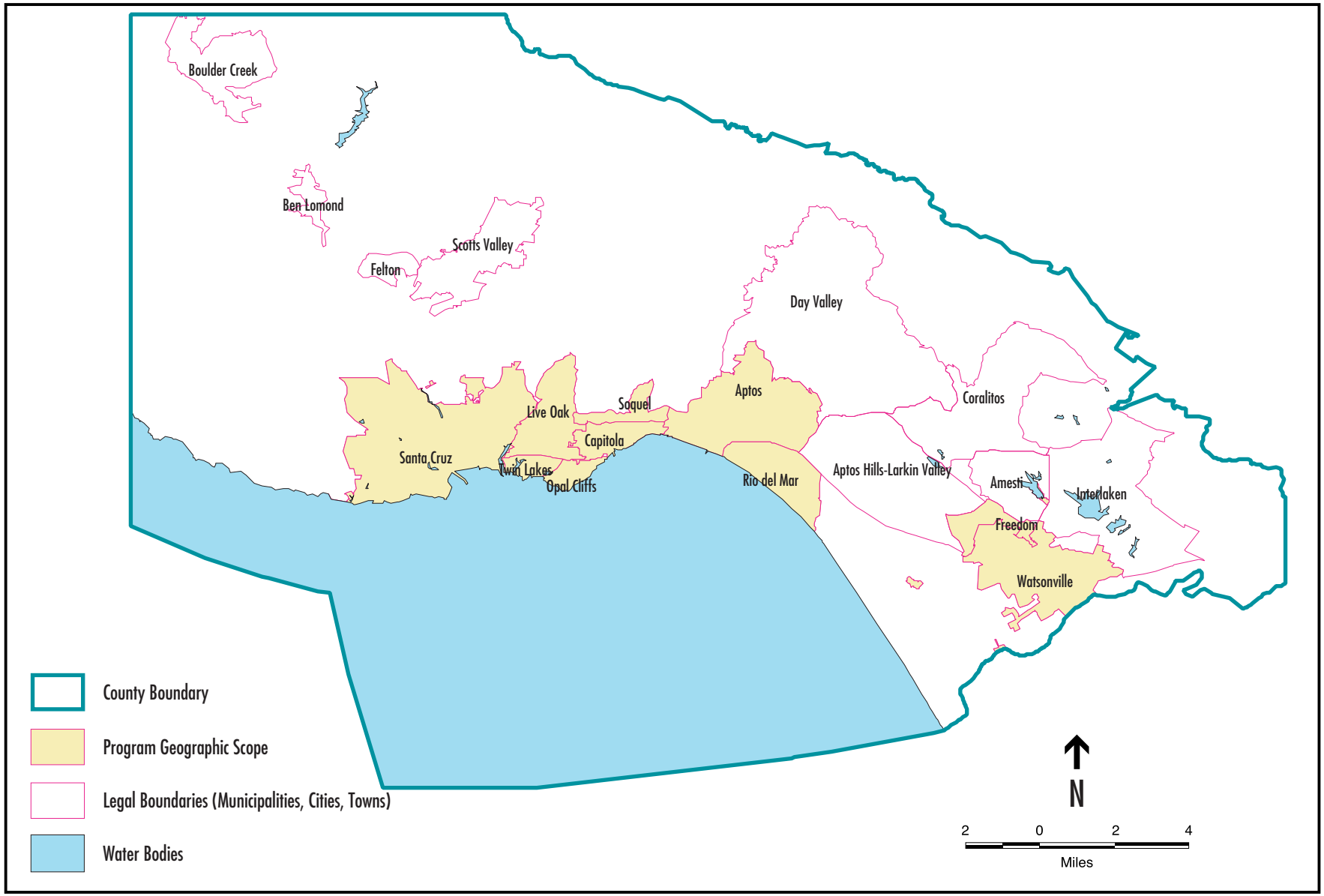
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-6
San Mateo County
Project Area



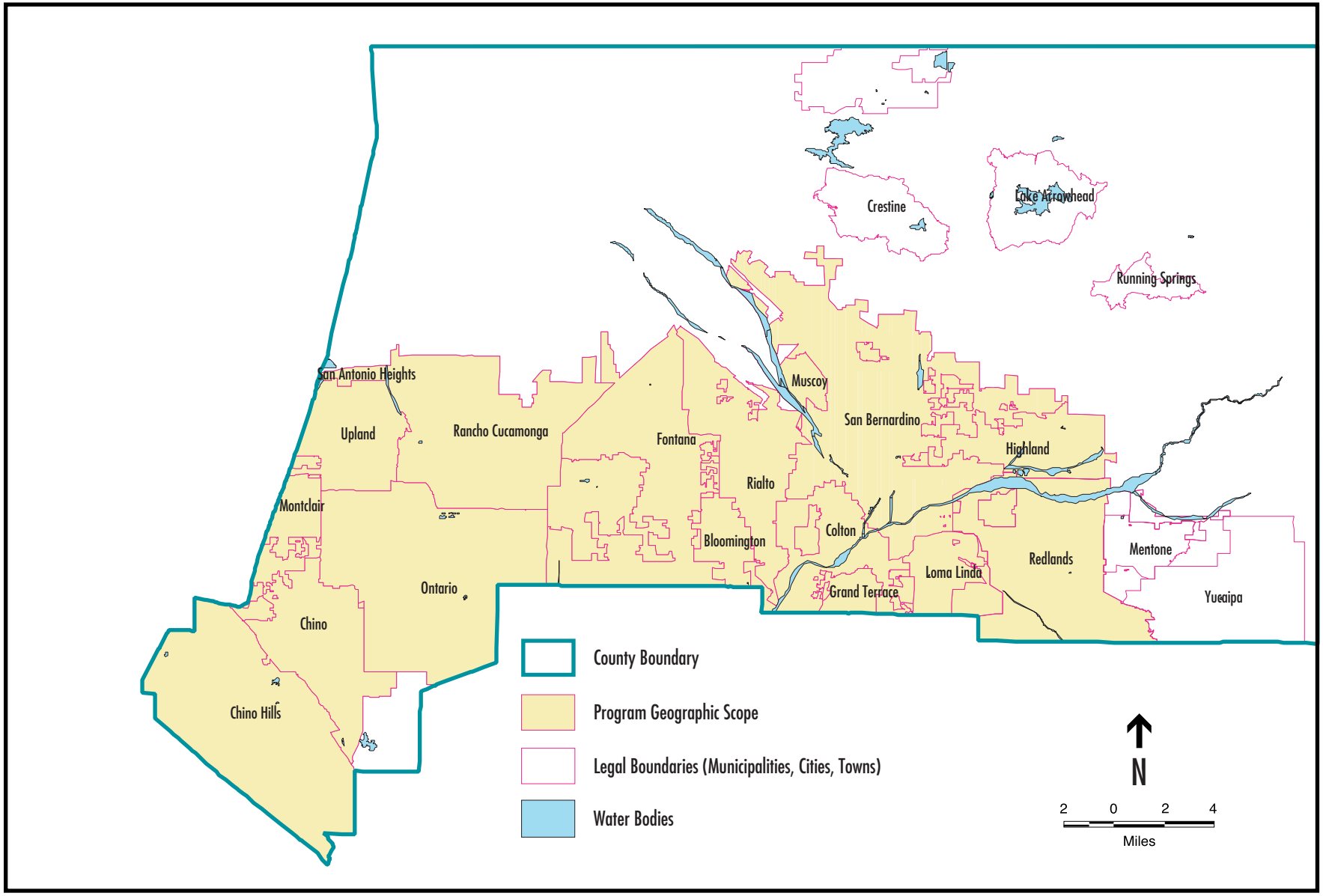
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-7
Santa Clara County
Project Area



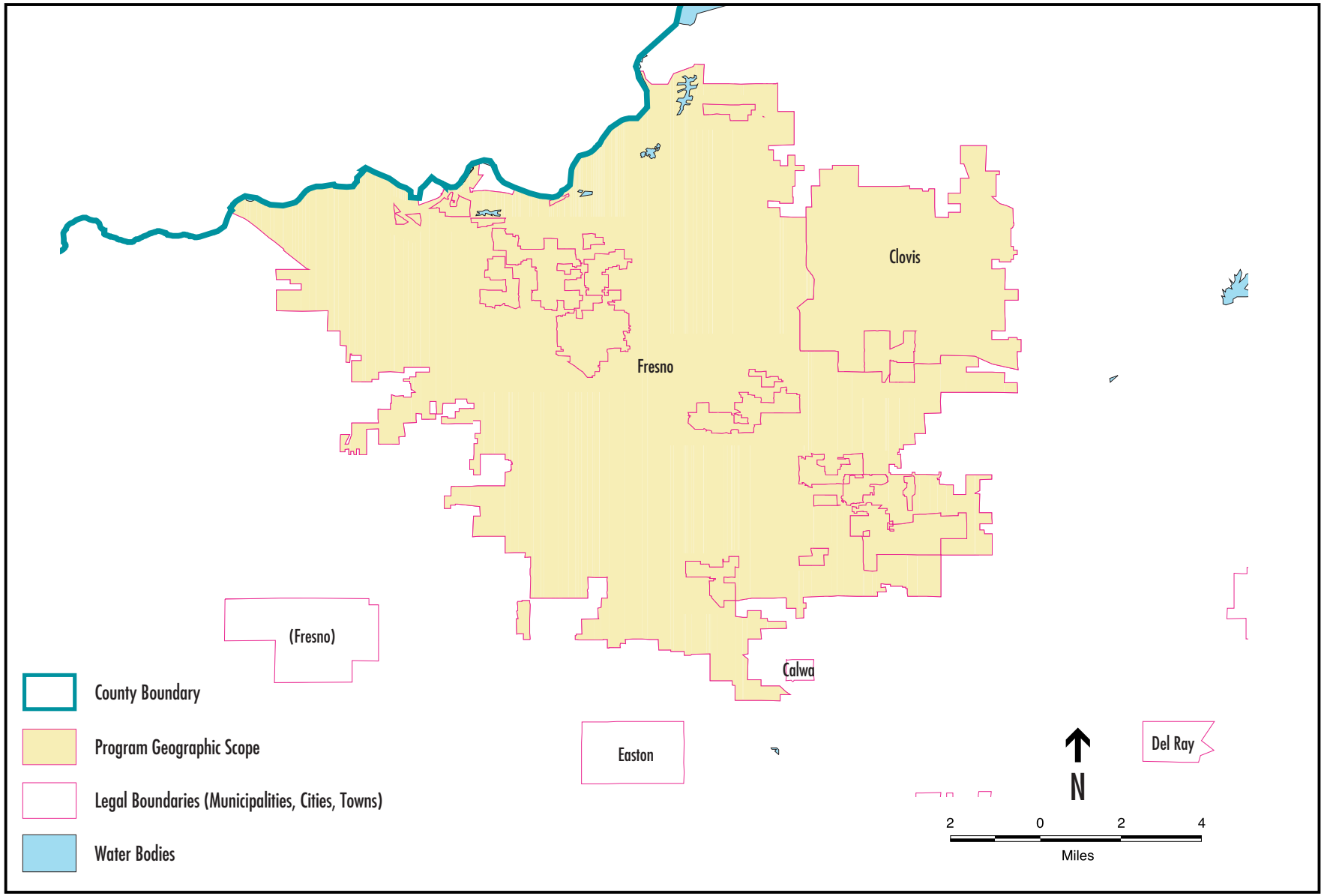
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-8
Santa Cruz County
Project Area



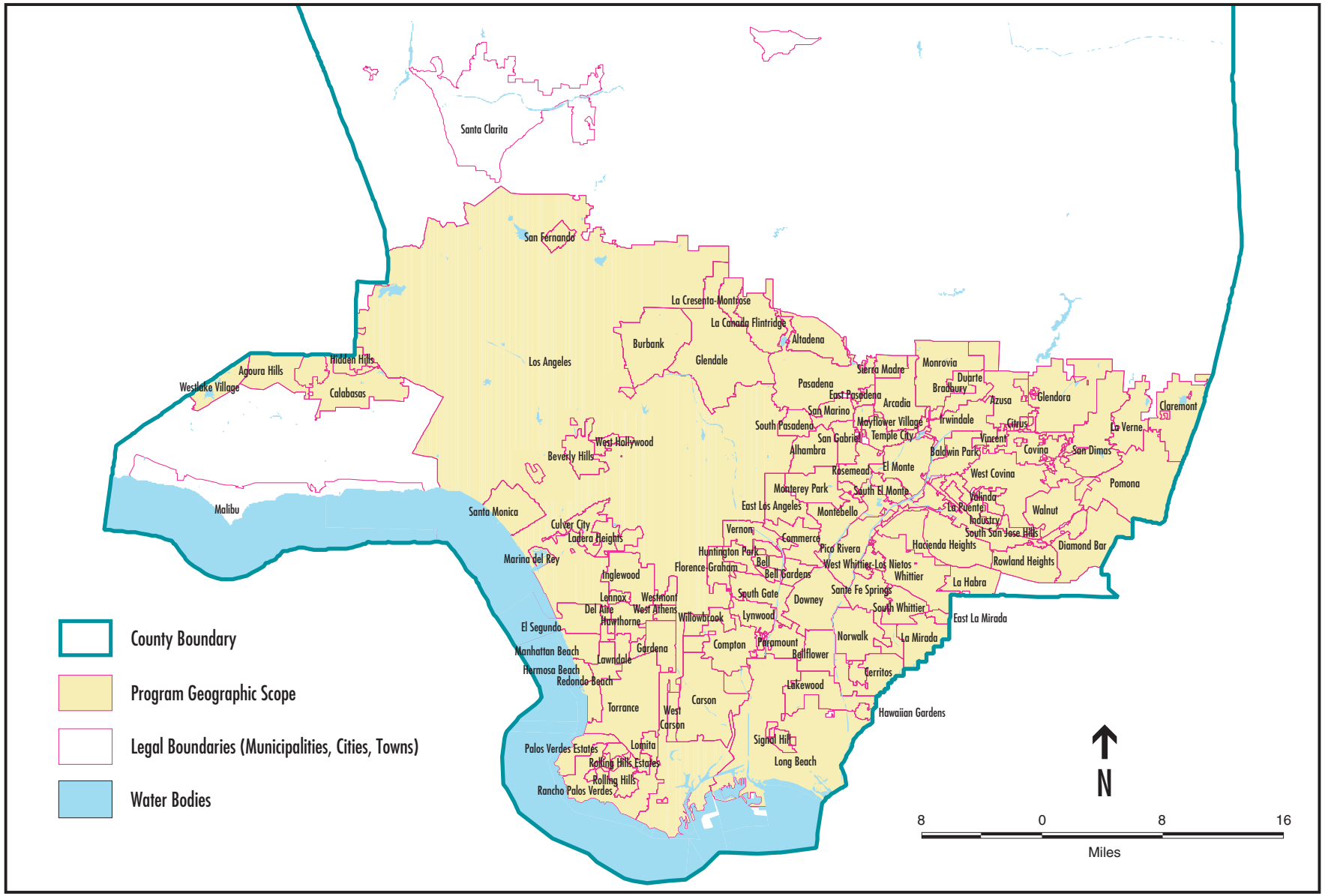
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-9
San Bernardino County
Project Area



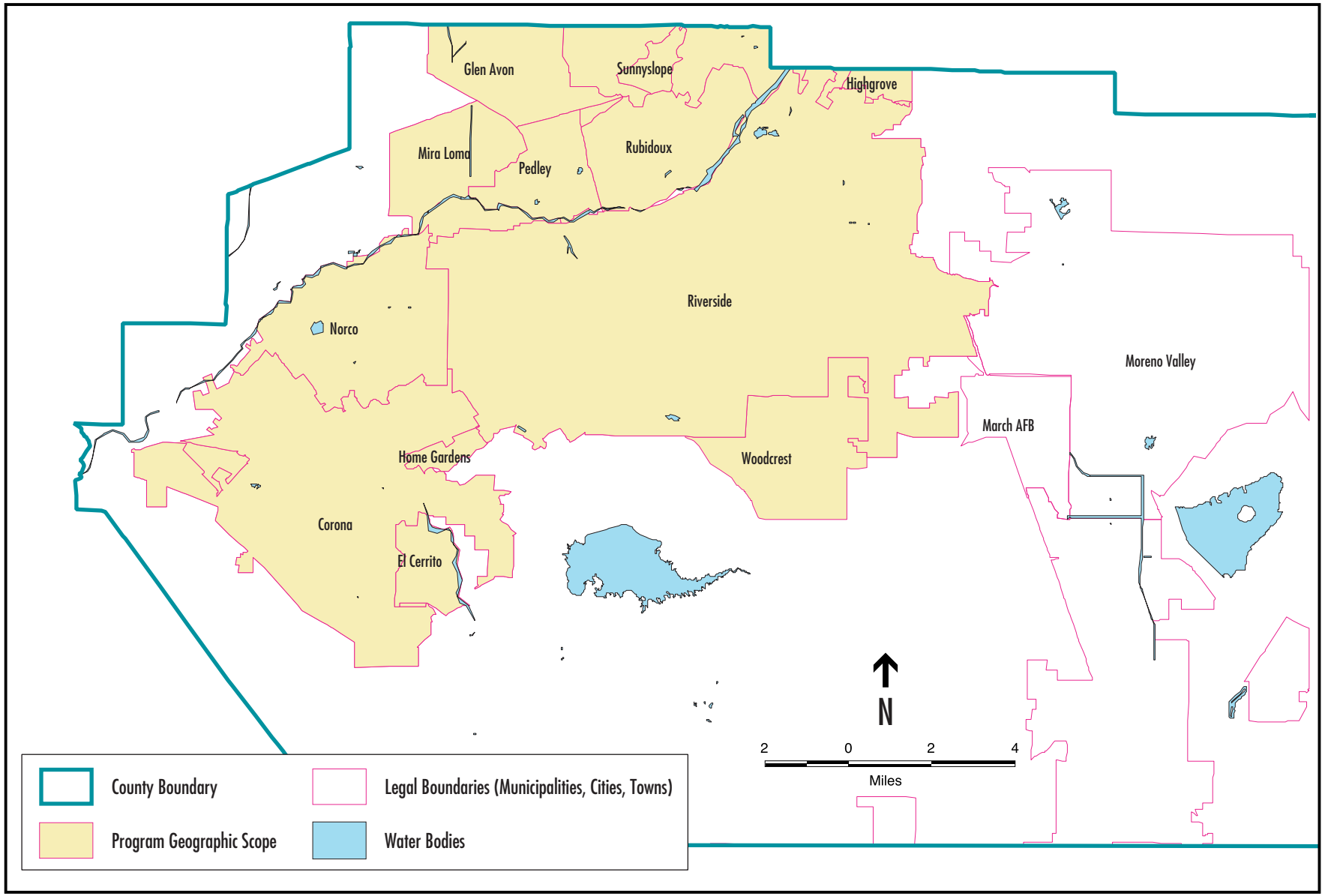
SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-10
Fresno County
Project Area



SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-11
Los Angeles County
Project Area



SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

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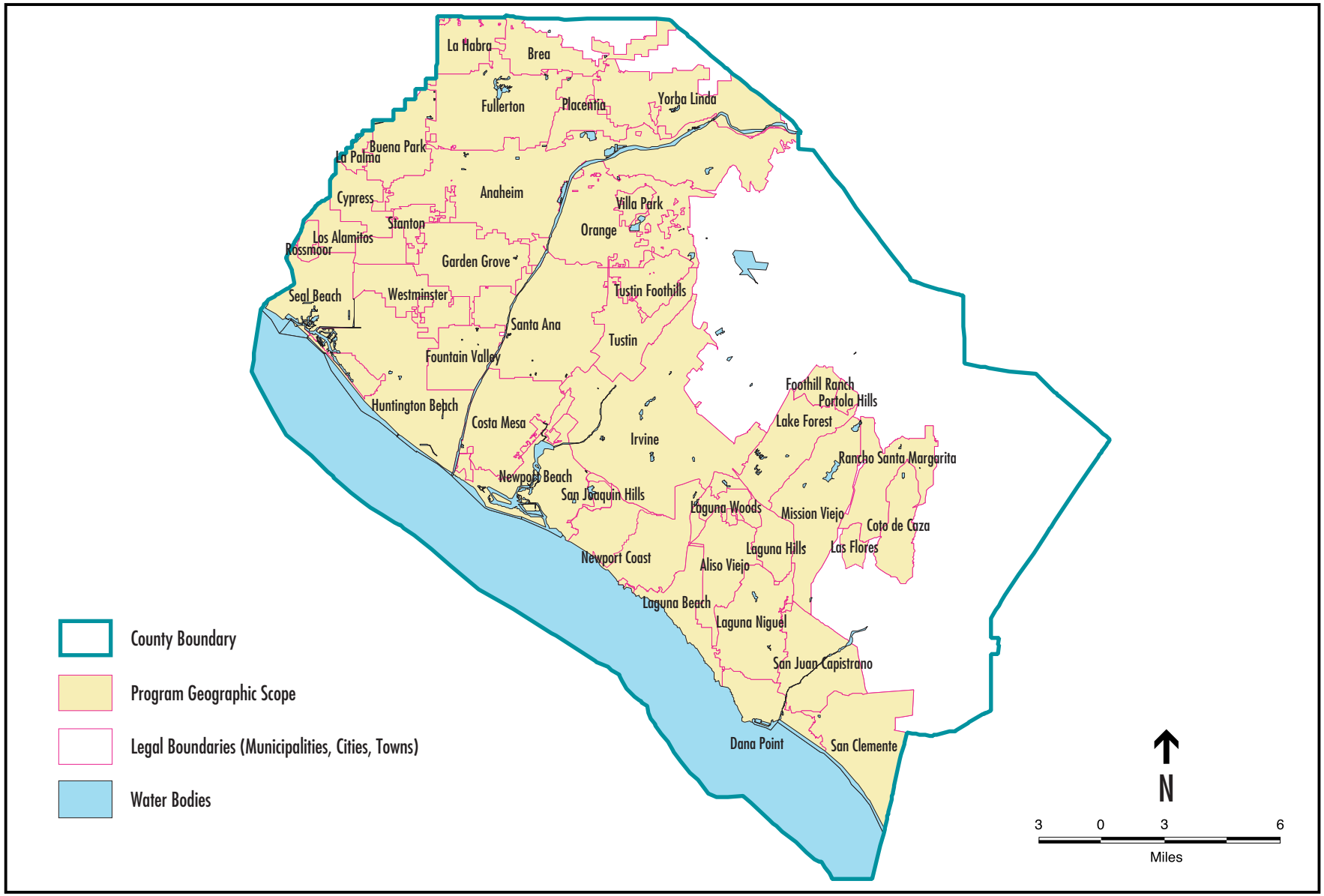
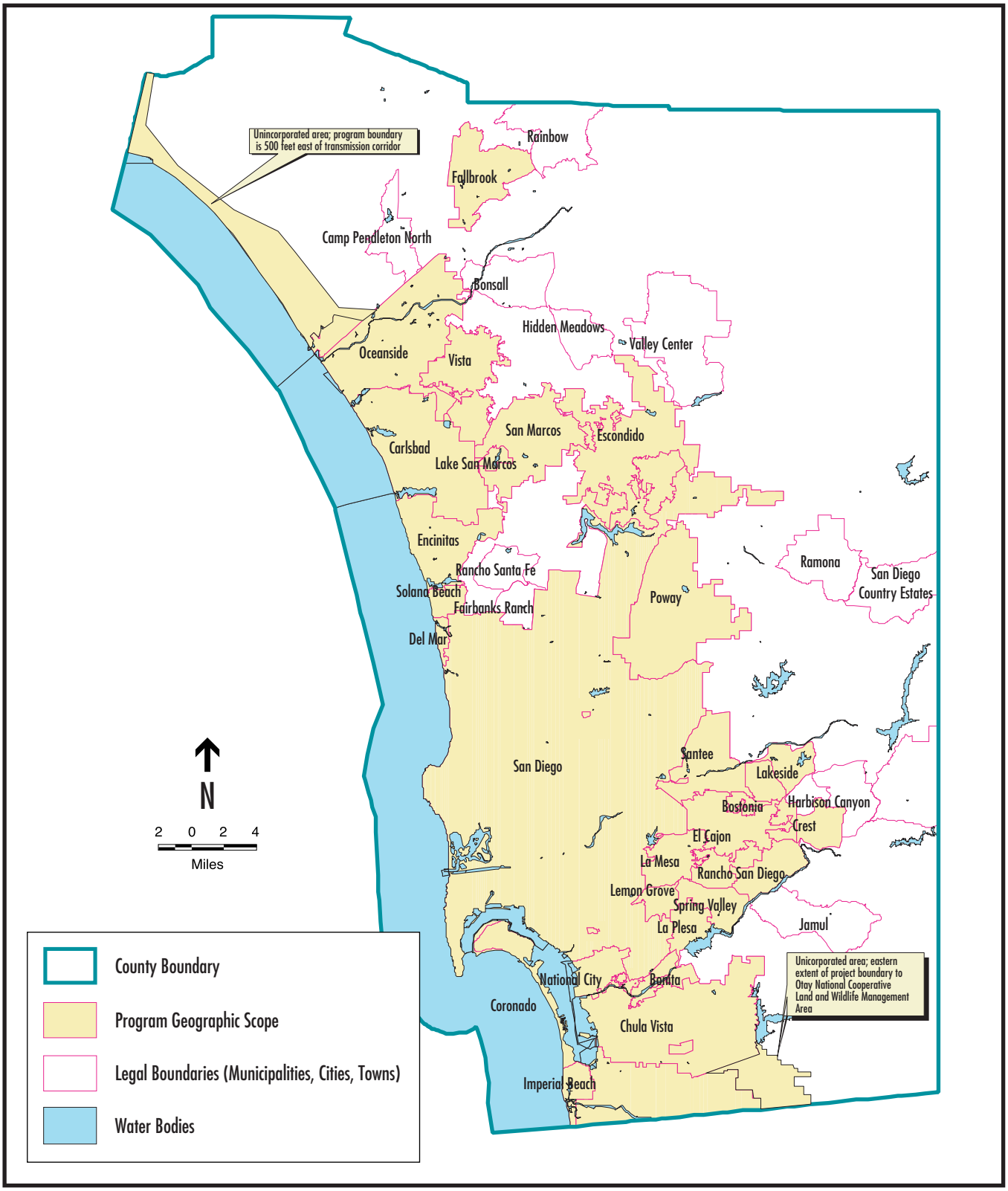
Figure 3-12
Riverside County
Project Area



SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-13
Orange County
Project Area



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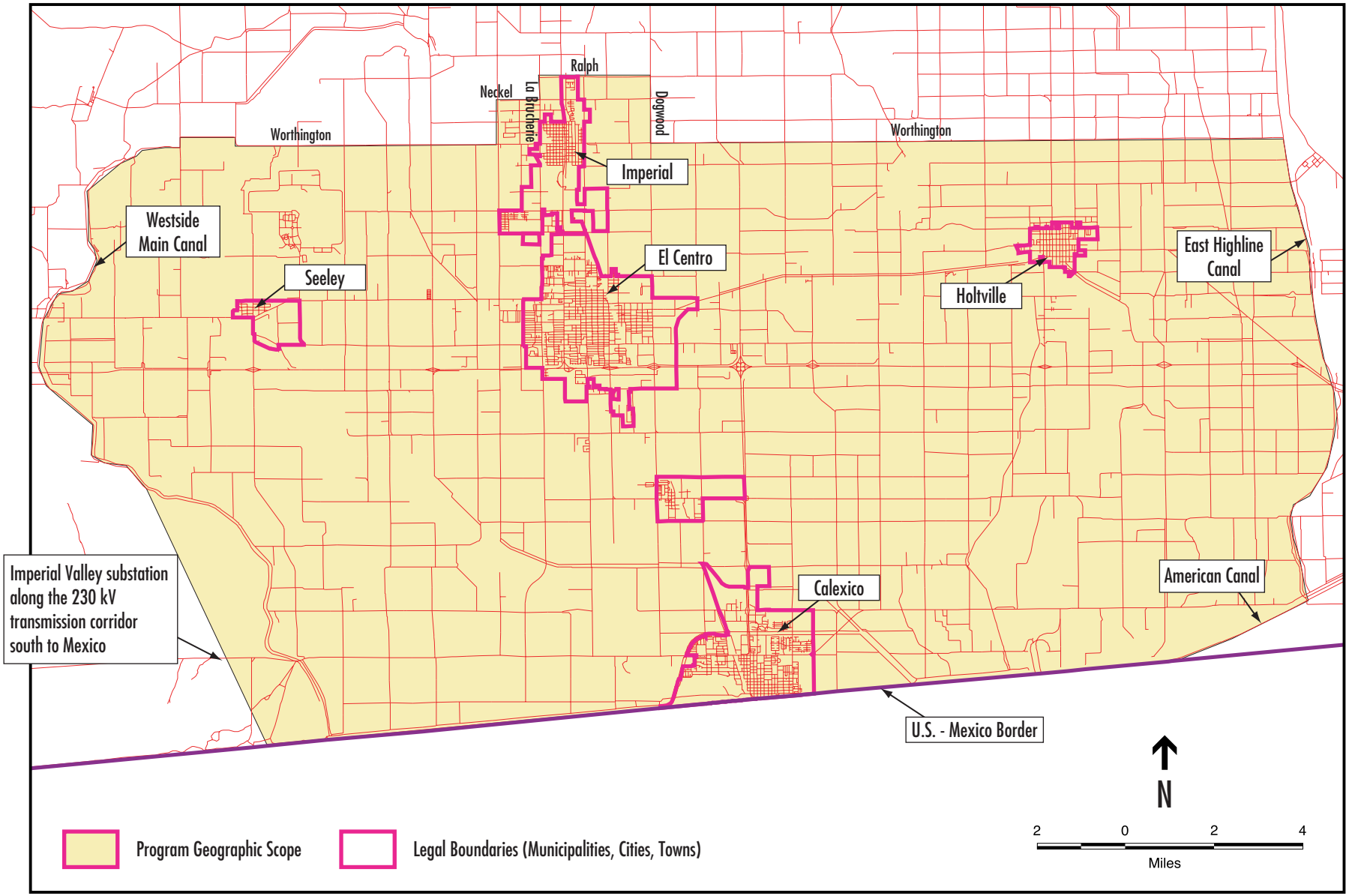
SOURCE: U.S. Census Bureau; Tiger 2000;
and Environmental Science Associates, 2002

Figure 3-14
San Diego County
Project Area



SOURCE: U.S. Census Bureau; Tiger 2000; and Environmental Science Associates, 2002

Figure 3-15
Imperial County
Project Area

3.1.3 PROJECT FACILITIES

FIBER OPTIC CABLE

Current fiber optic technology utilizes thin strands of clear glass to transmit pulses of light that constitute telecommunications signals used for transmitting voice, data, telephony, and other forms of communication. These laser-generated light pulses can travel great distances without signal distortion, resulting in higher quality communications. By using different wavelengths of light, several signals can be fed into the fibers at the same time and remain discrete while travelling many miles. The fibers are grouped into cables of various sizes depending on the number of customers to be served. Fiber optic cables provide substantially greater capacity and reliability than traditional copper wires used for telecommunications, while requiring less maintenance. The proponent proposes to use three different types of fiber-optic cable:

> **Optical Ground Wire (OPGW)** is used for installation on transmission line tower structures. OPGW cable is a composite cable with an outer stranded aluminum cable layer, with an inner layer consisting of stainless steel tubes housing the optical fibers. The core of the OPGW cable is a steel reinforcing cable that provides strength to the overhead structure. The outside diameter of the cable is approximately 0.5 inches to 1.5 inches, depending upon the transmission line's static wire requirements.
>
> **All Dielectric Self-Supporting Cable (ADSS)** is used for installation on overhead utility pole structures. The outer layer consists of a black rubber protective cover with an internal layer of Kevlar "buffer tubes" creating a load-carrying central core within which the optical fibers are placed. The outside diameter of the cable is approximately one inch.
>
> **Loose Tube Cable (LT)** is used for installation in underground ducts. LT is essentially identical to ADSS, except that the central load-carrying core is not as strong. The outside diameter of the cable is approximately one inch.

These three types of composite fiber-optic cables are used depending on where and how the cable is located and/or supported. For underground portions of the project, LT is used. It is the lightest cable because it is laid in underground ducts and does not have to be self-supporting. Overhead fiber-optic cable installed on electric distribution poles requires ADSS because in addition to containing the optical fibers, the cable must be self-supporting. Overhead fiber-optic cable installed on electric utility transmission line towers uses OPGW cable. While similar to ADSS, OPGW cable must be much stronger since the distance between transmission line towers is much longer than the distance between distribution poles (typically 1,200 feet versus 200 feet). The cable must be strong enough to support the much greater weight of the suspended cable and the additional cable tensioning loads that are required to produce the correct "sag" between towers. OPGW cable must also be capable of handling the current that occurs when the transmission line has an electrical outage.

MANHOLES, HANDHOLES, AND ASSIST POINTS

Manholes and handholes, also referred to as "utility access vaults," are points of access to underground fiber optic cable. Manholes and handholes (see **Figure 3-16**) would usually be placed at intervals of approximately 500 to 1,500 feet to allow installation and splicing of fiber optic cable. These access points also serve as points for future access to the fiber optic cable for maintenance, repairs, or future installations.

Manholes are the larger of these two types of "utility access" vaults. The manholes are used to provide access to underground fiber optic cable, and are routinely deployed beneath or adjacent to traveled surface streets with street-level lids (reinforced concrete or to or steel/iron.) Manholes are typically reinforced concrete or fiberglass boxes with sizes ranging from 4 feet deep by 6 feet wide by 6 feet long and larger. In a manhole, a carrier can connect to the fiber optic cable for distribution to customer locations. Manholes are also used for splicing sections of cable.

Handholes provide access to underground fiber optic cable that has been installed either in areas beneath or adjacent to traveled surface streets, or in other areas. Handholes are typically reinforced concrete or fiberglass boxes with sizes ranging from 2 feet deep by 2 feet wide by 4 feet long to 4 feet deep by 4 feet wide by 4 feet long. Handholes would generally only be used to splice two sections of fiber optic cable together.

SPLICE BOXES

Splice boxes serve as cable splicing points on overhead structures for connecting overhead cable pieces and transition points to underground cable. Splice boxes would be placed at intervals of about three to four miles to assist fiber-optic cable installation and maintenance (**Figure 3-17**).

REGENERATOR AND OP-AMP STATIONS

The signal transmitted on a fiber-optic strand must be amplified (i.e., boosted) approximately every 40 to 80 kilometers and regenerated, or "cleaned up," every 80 to 200 kilometers to function properly. A regenerator and OP-AMP station houses the electrical equipment that reconstructs and boosts the optical signal. The outside elements of the Regenerator and OP-AMP stations are identical (**Figures 3-18** and **3-19**); the only difference is the electronic equipment inside these facilities; thus, the terms "regenerator station" and "OP-AMP station" are often used interchangeably. OP-AMP stations are the most frequently used facilities because regenerator stations are required for longer, continuous routes (typically more than 200 kilometers between beginning and end points). OP-AMP stations would be installed approximately every 40 kilometers along routes where they are required. Typical regenerator/OP-AMP stations consist of one to eight, 12- by 30-foot precast concrete building lined up side by side on a concrete pad. More buildings can be added if required by network traffic levels.

RECOMMENDED INSTALLATION PROCEDURE
4'x6.5'x4'

1. COMPACT AND LEVEL THE BOTTOM OF THE EXCAVATION.

2. PLACE 4" TO 8" INCH LAYER OF TAMPED CRUSHED AGGREGATE BASE.

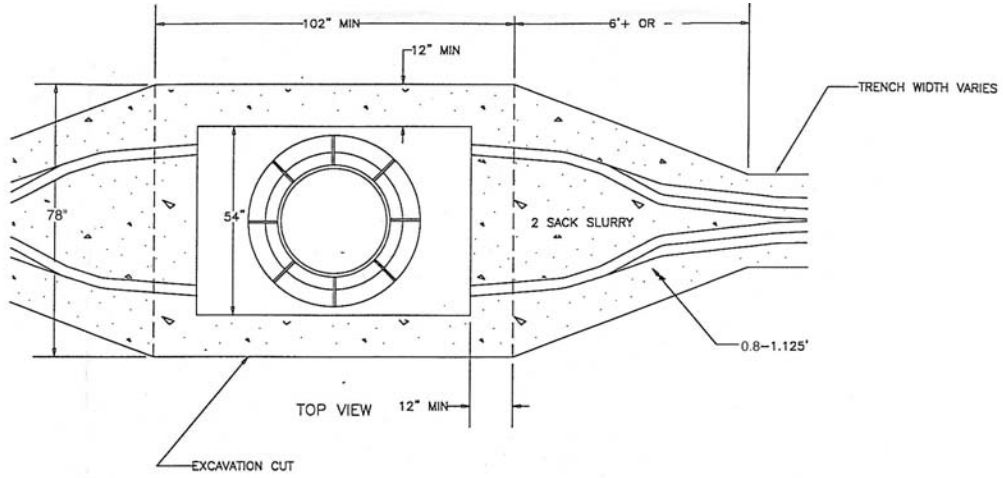
3. PLACE THE VAULT SO THAT THE COVER IS AT FINISHED GRADE.

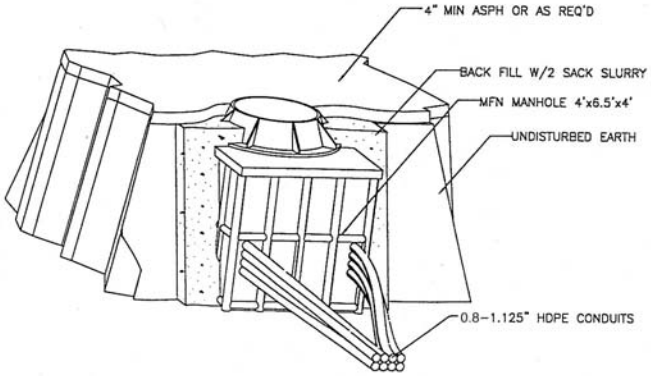
4. BACK FILL AROUND THE FRP MANHOLE WITH 2 SACK SLURRY 12" MIN. THICK ALL AROUND THE MANHOLE.

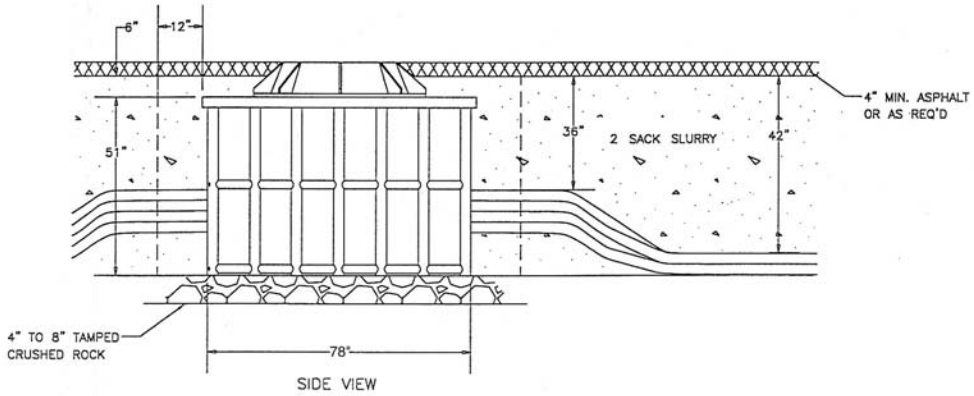
5. TEMPORARILY BRACE THE INSIDE OF THE VAULT DURING THE BACK FILL OPERATION USING A MINIMUM OF THREE SUPPORTS AGAINST 4"x4"x6' LUMBER PLACED HORIZONTALLY TO MINIMIZE WALL DEFLECTION DURING THE BACKFILL OPERATION. REMOVE BRACING AFTER IS CURED.

6. BACK FILL IN EVENLY DISTRIBUTED 12" LIFTS AND COVER THE FULL LENGTH AND WIDTH OF THE ENTIRE AREA TO BE FILLED BEFORE THE NEXT LAYER OF MATERIAL IS PLACED.

7. THE ABOVE RECOMMENDED INSTALLATION PROCEDURE IS PROVIDED FOR INFORMATION ONLY. CONTRACTORS SHALL FOLLOW THE LOCAL AGENCY'S REQUIREMENTS FOR INSTALLATION AND ALL APPLICABLE CODES. ANY EXCAVATION OR INSTALLATION WITHIN THE RAILROAD RIGHT OF WAY SHOULD BE APPROVED BY THE RAILROAD COMPANY.

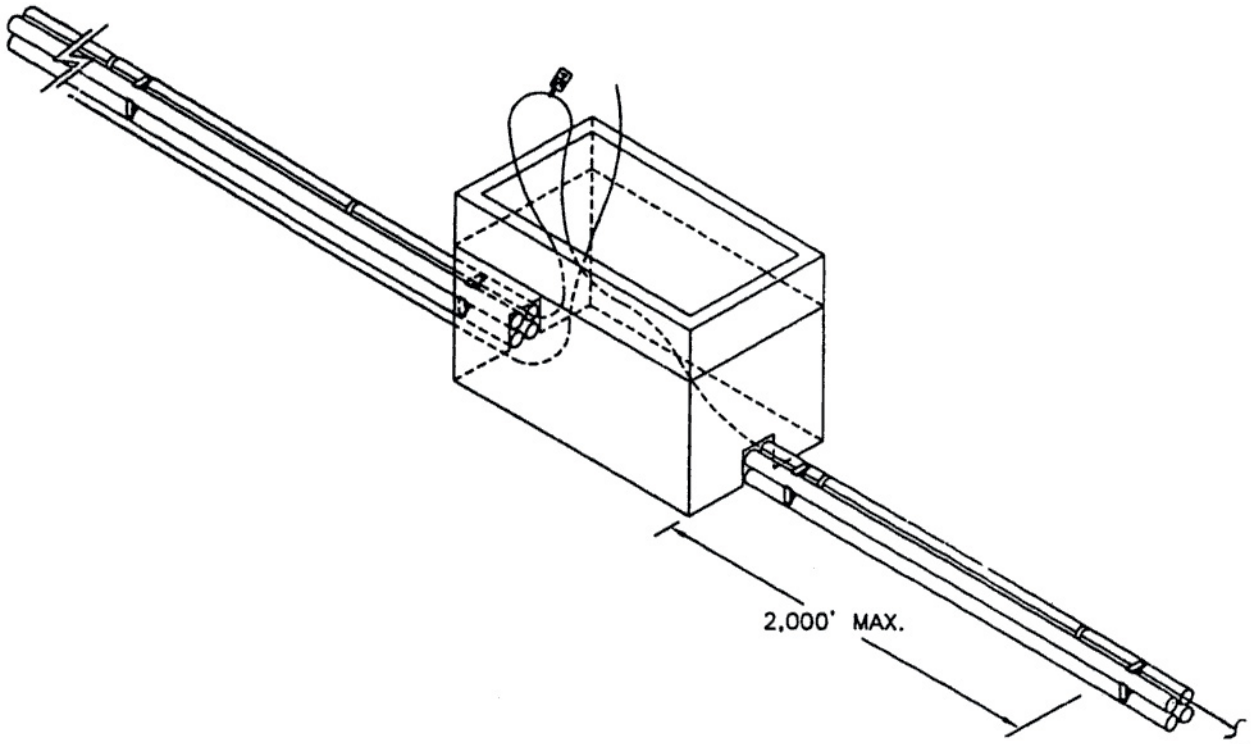






SOURCE: Network Development Consultants, Inc.

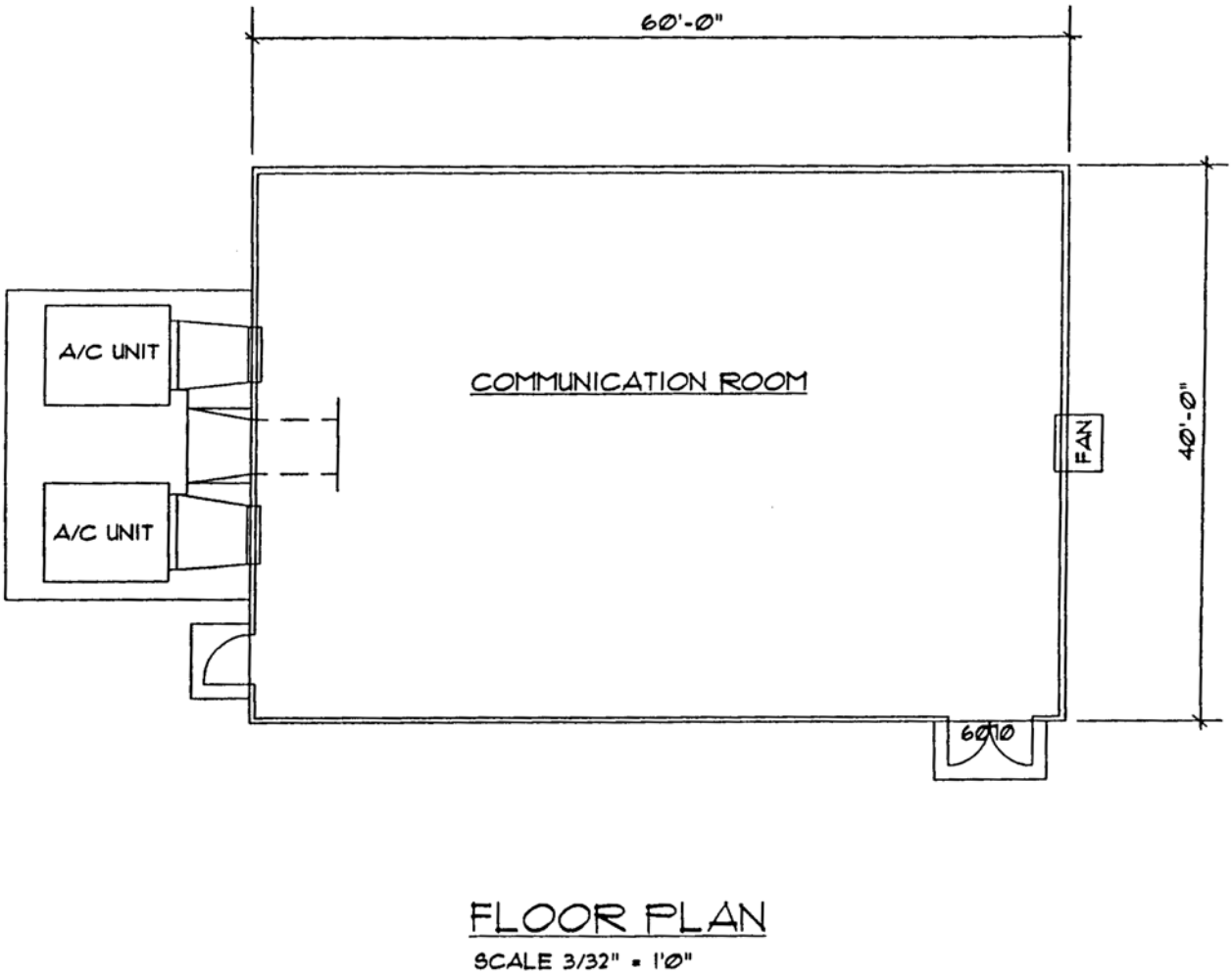
Figure 3-16
Manhole Detail/
Installation Procedure



SOURCE: Sempra Communications

Figure 3-17

Typical Splice Box



SOURCE: Sempra Communications

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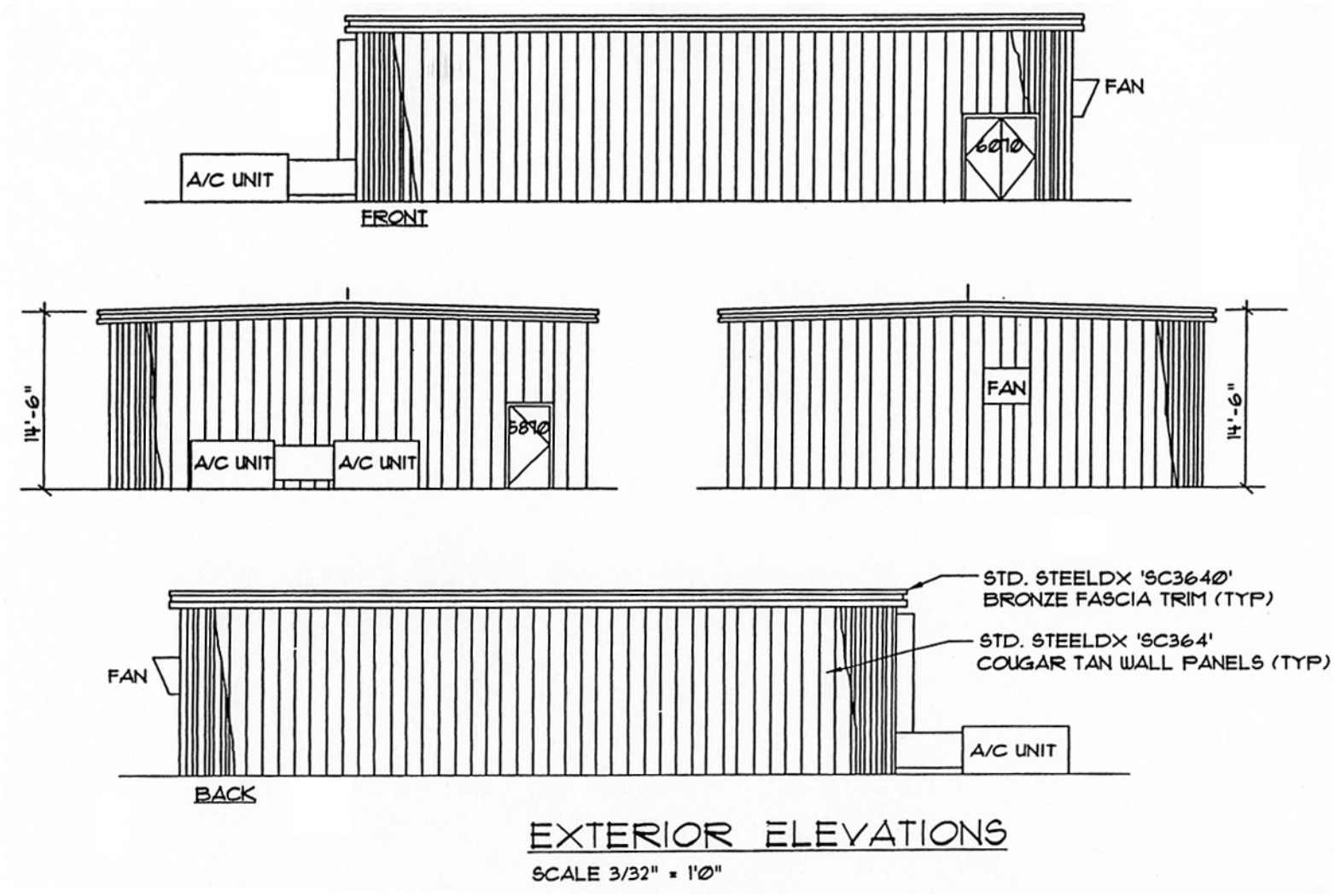
Figure 3-18

Floor Plan of Typical Regeneration Building



SOURCE: Sempra Communications

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Figure 3-19

Exterior Elevation of Typical Regeneration Building

Each building comes from the manufacturer equipped with one or two heating, ventilation, and air condition (HVAC) units to maintain a steady temperature for the electronic equipment. The HVAC units in the regenerator stations are designed to operate from the same electrical sources as the other equipment in the building. When necessary, a diesel generator and/or battery banks would be used for emergency backup power. If required, an aboveground 250-gallon fuel tank (approximate) would be installed. The HVAC units produce low noise levels, and no other noise-producing equipment is housed in the regenerator stations.

The buildings would be fenced for security and safety reasons. The size of the fenced area would vary depending upon the number of precast buildings installed. The unstaffed, locked facility requires commercial electric power and periodic maintenance. Although regeneration stations are unmanned, parking would be provided for personnel required to perform periodic maintenance and deal with any emergency.

Each station would have an overhead security light and a small light over the door. All lighting would be equipped with sky shielding and night timers or motion detectors to minimize night light pollution. Each of the regenerator stations would have a typical operating load based directly upon the number of fibers used. Typical sizes range from 200 kilowatts to 1,000 kilowatts.

3.2 PROJECT DESIGN AND INSTALLATION METHODS

Subsequent activities proposed by Sempra Communications under this Program EIR could consist of either/or both underground and aboveground facilities. For underground construction, the cable is protected by conduit/innerduct made of polyvinyl chloride (PVC) or other similar inert material. The conduit/innerduct provides protection from both physical and environmental damage including shifting rocks, rodents, and/or damage from hand shovels. Cable in underground conduit is easy to replace or upgrade. Old cable can be pulled out of the conduit and replaced with new cable without extensive and expensive digging. The conduit is typically 1.25 to 4 inches in diameter and made of PVC, high-density polyethylene (HDPE), or steel.

Aboveground facilities may include aerially hanging cable on utility poles, attaching cable in conduit casing on bridge structures or installing cable on transmission towers.

A general discussion of the types of construction methods that would be used to install the fiber optic cable and/or conduit for both underground and overhead facilities is provided below. In some cases, a combination of two or more of these methods would be used due to geographical or topographical constraints, resource avoidance considerations, or availability of rights-of-way.

3.2.1 UNDERGROUND FACILITIES

The method of conduit installation would be either by trenching, plowing, or directional bore depending on one of several determining factors. These factors include governing authority requirements and/or restrictions, density and location of existing buried utilities, soil or environmental conditions, surface conditions, vehicular traffic and installation costs.

OPEN TRENCHING IN ROAD RIGHTS-OF-WAY

Typical open trenching details are shown in **Figure 3-20**. Trenching generally involves a road saw and a rubber-tired backhoe or an excavator. The road would be cut at the desired width, which would be approximately 4 inches greater than the conduit cluster diameter, but may vary depending on the underground facilities encountered at each location. A backhoe would then be used to dig the trench itself. Trenches would be two to four feet deep. The construction zone would be approximately 20 to 40 feet wide where no sensitive environmental resources are present. Typically, a crew would expose no more than 1,000 to 2,000 feet of trench at any time during construction, and trenches would be filled or covered at the end of each day. The bottom of the trench would be backfilled as specified by local agency permit conditions. Any excess excavated materials remaining after the trench is refilled would be transported to an appropriate facility. During the backfill process a warning tape would typically be placed 6 inches above direct buried conduit and a second tape would be placed 12 inches below grade. Finally, the disturbed areas would be returned to their original or better condition by replacing all asphalt, landscaping, or any earthen areas.

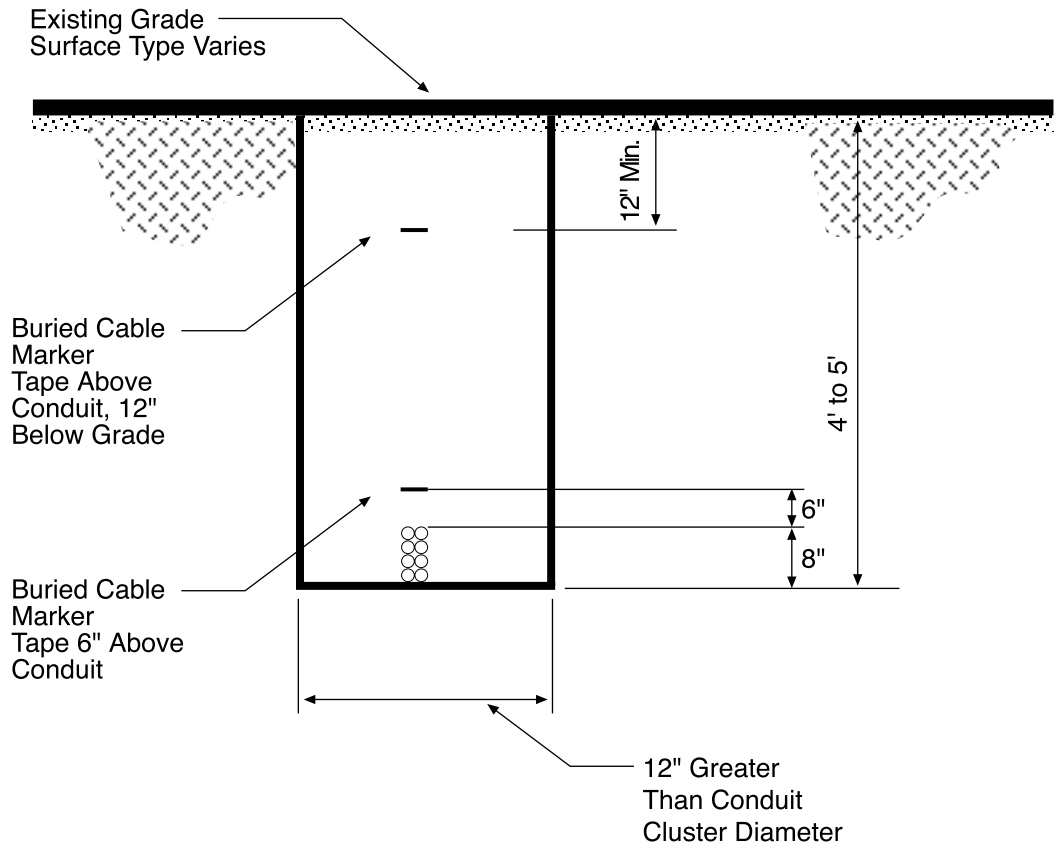
If conditions do not allow for small isolated areas such as handholes or assist points to be backfilled at the end of each day, appropriate safety, erosion, and wildlife control features would be installed.

PLOW AND TRENCH INSTALLATION IN AN EXISTING PIPELINE OR OTHER UTILITY RIGHTS-OF-WAY

Plowed installation uses a tracked vehicle (i.e., bulldozer) with a front-loaded cable reel and a plow blade in the rear. As the vehicle moves, it simultaneously furrows the soil and installs the conduit or cable. The cable plow is a single, straight-shafted blade, which opens a narrow trench about 12 inches wide and four feet deep. The innerduct is continually placed in the trench, and as the plow moves ahead the trench closes in behind the plow. The disturbance caused by the plow is typically restored within 2 days as part of the cleanup process. In stable soils the machines leave a track in the vegetation similar to, but wider than, a road vehicle. In wet or soft conditions this disturbance may be great enough to require more extensive grading and reseeding to restore the area. When wet, soft, or restricted areas are anticipated, a “Spider Plow” may be used. This equipment has been specially developed for these conditions and causes much less disturbance because it runs on oversized rubber tires and is lower in weight.

The direct burial construction method greatly reduces potential impacts to the environment because of the speed of construction and the limited area of disturbance. Using this method, the cable plow work train can generally install the conduit/innerduct at a walking pace, and in most areas, only one equipment pass through an area is necessary. The right-of-way width required for the installation operation is limited to the width of a tractor. Generally, no work road or passing lane is necessary.

Typical Trench Detail



SOURCE: Network Development Consultants, Inc.

Figure 3-20
Typical Trench Detail

In areas where soil and geologic conditions preclude the use of a cable plow, open trench installation methods are employed. Open trench construction involves excavating a width of 12 inches and a cover depth of at approximately 24 to 48inches. Equipment may vary but would include a track hoe, a rubber tire backhoe or chain trenchers. The innerduct is placed in the trench, and as the backhoe excavates ahead, sidecast material is back filled into the trench. Restoration would be complete generally within 2 days and includes placement of select fill compacted utilizing existing excavated material provided the material is free from rock and debris. The surface would be regraded to conform to surrounding contours and restored as appropriate.

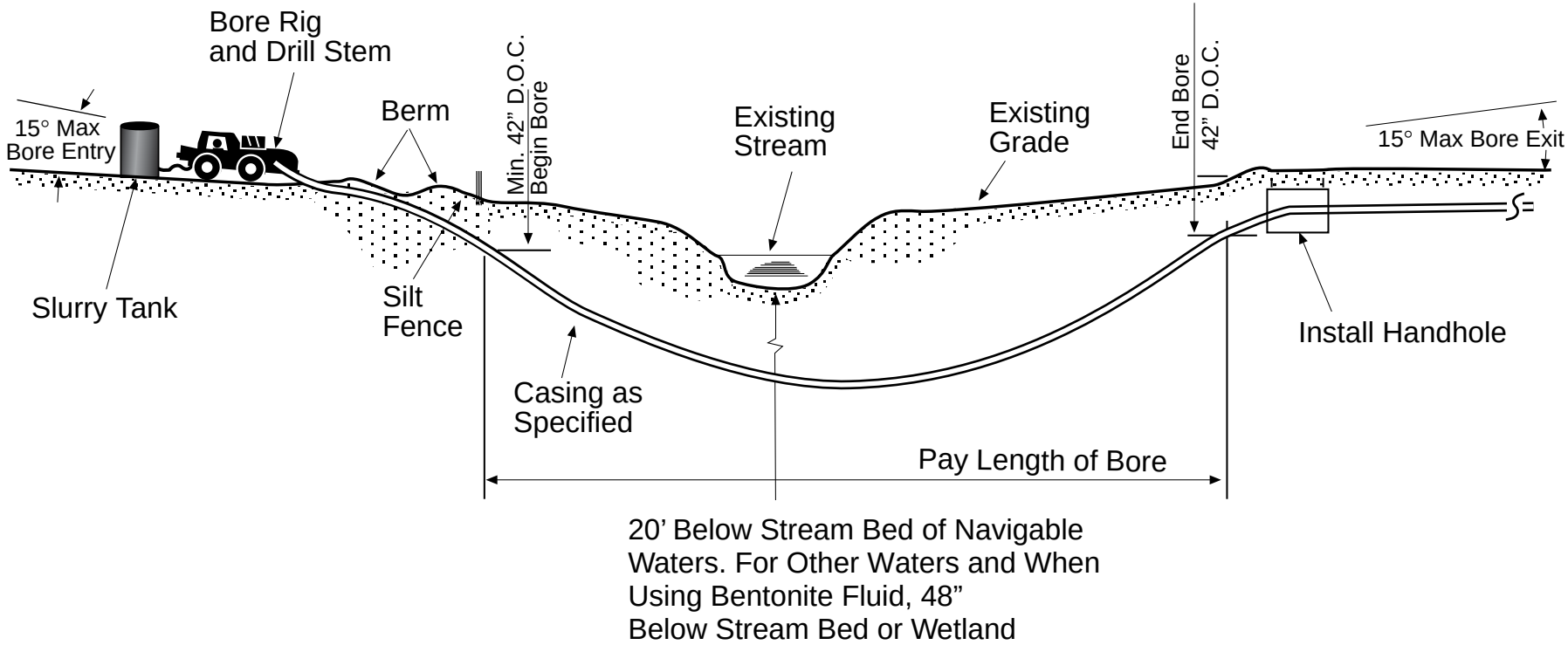
In almost all instances, plowing or trenching in existing pipeline or other utility rights-of-way has fewer environmental impacts than installing the cable along a cross-country route because pipeline and utility corridors have already been disturbed and area often actively maintained. These pre-existing cleared corridors are also likely to have established access for vehicles and construction equipment. If any project routes are located outside existing rights-of-way, the construction corridor would be approximately 20 to 40 feet wide, depending in the presence of any sensitive environmental resources.

PLOW AND TRENCH INSTALLATION IN AN EXISTING RAILROAD RIGHTS-OF-WAY

Plowing or trenching along existing railroad rights-of-way is similar to plowing trenching in an existing pipeline or utility corridor. Railroad rights-of-way are generally fairly narrow (50 to 100 feet). In very limited cases, the contractor can use rail-mounted plowing equipment. However, if other utilities are located in the right-of-way or the policies of the railroad preclude rail plowing, rail-mounted plowing methods may be infeasible. In most cases, a standard plow or trencher is used. Installation along railroad rights-of-way frequently necessitates more trenching than pipeline corridors because the surface cross section of a railroad right-of-way is uneven and/or narrow and plowing methods cannot be used effectively.

DIRECTIONAL BORING

Directional boring involves boring and placing conduit under such areas so that the surface grade is not disturbed (see **Figure 3-21**). In directional boring, a surface-operated drilling device is angled into the ground from the surface and directed to its destination using a radio –controlled mole that contains a cutter head. Personnel directing the mole on the ground, control its depth and direction of excavation. A plastic or steel sleeve is left in the ground through which the innerduct is later installed. Should the mole run into rock or other debris, it can be reversed and redirected around the obstruction. Once the innerduct is installed, surfaces are restored to original or better condition. This method can be used to cross highways, rivers, railroads, pipelines, city streets, etc. and can be beneficial where the route encounters environmentally sensitive areas, such as culturally (historically and/or archaeologically) important sites and wetlands, through which trenching could have significant adverse effects.



SOURCE: Kiewit Network Services Co.

Figure 3-21

Typical Directional Bore Under Streams
and Navigable Waterways

Drilling Equipment and Work Space

Two staging areas are required for directional boring operations: the entry site where the drilling rig and auxiliary equipment are positioned, and the exit site-pipeline laydown area. Preferable sites would be relatively flat without obstructions. The drill staging area on the entry side would cover an area up to 200 feet by 50 feet or 10,000 square feet total, with the long end oriented along the cable alignment. Equipment would be set up in proportion to the right-of-way configuration. If necessary, smaller staging areas can be utilized. The exit point staging area must be of sufficient length to accommodate the overall curve distance of the proposed bore line. The size of the casing being installed may vary the required width of the exit site.

Drilling Fluid and Drilling Fluid System

Drilling fluids typically used to cool and lubricate the drill motor and reamers consist of a non-toxic mixture of water, bentonite clay, and polymers or other non-toxic additives to improve field performance. The drilling fluids further serve to transport rock and soil cuttings away from the drill cutters to reduce friction between the pipe and the bore hole wall and to stabilized the hole. Bentonite is a naturally occurring, non-hazardous clay product. Bentonite slurry consists of approximately 8.6 points of bentonite per gallon of fresh water.Flow rates, pressure, density, viscosity, gel strength, and lubricity are monitored throughout the drilling and reaming operation to maintain fluid performance and detect drill fluid losses. All cuttings and excess drilling fluids would be disposed of off site by the subcontractor at an approved disposal site.

Drilling Fluid Loss and Measures to Control Spills

While directional drilling is an effective and increasingly popular method of casing installation for crossing rivers and waterways, it does present some risk of waterway disturbance due to lost circulation or inadvertent return. The potential for an accidental release is greatly reduced by providing adequate depth of cover and by selecting an experienced and knowledgeable contractor.

Lost Circulation. Lost Circulation refers to the loss of drilling mud into the soil or rock through open fissures, coarse gravel, and highly-jointed or easily fractured formation. Measures that would be taken to control lost circulation during water crossing include:

- Controlling fluid pressures in the annulus by minimizing viscosity required to satisfy hole cleaning and stabilization requirements;
- Minimizing gel strength;
- Sizing the hole frequently to ensure an adequate clear annulus; and,
- Controlling “plunger effects” caused by rapid penetration or spoil buildup on bits or pipe.

Inadvertent Returns. An inadvertent return is the abrupt escape of drilling fluid from the pipe annulus to the ground or streambed surface along alternate flow paths through soil and rock. Hydraulic fracturing of rock, open fissures, and insufficient rock cover can all lead to inadvertent returns. Measures that would be taken to reduce chances of inadvertent return during installation include:

- Adequate cover;
- Maintaining drilled annulus – cutters and reamers would be pull back into previously drilled sections after each new joint of pipe is added to removed blockage; and,
- Monitoring drilling pressures so they do not exceed those needed to penetrate the formation.

If an inadvertent return occurs on land, standard containment procedures are implemented. The mud pumps are stopped while a shallow pit or sandbags and hay bales are used to contain and collect the returning flow. Once isolated, the fluid can be pumped back to the mud return pits and re-used. After drilling fluid seepage has been contained, the subcontractor would attempt to determine the cause of the seepage.

If inadvertent returns occur through the sediments under a waterway, the seeping mud may produce a visible plume in the water. If no visible in the water, signs of mud loss would be evident through monitoring mud return flow rates and pressures. Corrective measures that would be taken to control the seepage and minimize changes of recurrence include:

- Stopping all work and waiting several hours to see if the fracture occludes;
- Stopping all work and diffusing loss circulation materials such as a “Nut Plug”, “Flow

- Stopping all work and pumping cement grout.

If circulation cannot be restored using sealing materials and adjustments to the fluid properties and drilling practices, the hole would be abandoned (as described below) and redrilled along a deeper alignment.

Abandonment. Abandonment of the bore is a last resort measure that would be followed only when all efforts to restore circulation have failed. Steps that would be taken in the unlikely event that an incomplete bore must be abandoned are the following:

- The as-built hole alignment would be determined to the extent practicable, and documented;
- A casing would be inserted, if required, to allow removal of the pilot string; and,
- A thick, bentonite-cement grout would be pumped through the casing as it is extracted, resulting in complete filling of the bore.

HANDHOLE/MANHOLE INSTALLAION

Typical handhole/manhole installation equipment includes a backhoe and a support vehicle to haul away excess soil. The excavation work is very minimal, with soil excavation approximating the size of the handhole or manhole to be installed. Thus, for a typically sized handhole of 4 feet by 4 feet by 2 feet, an excavation would involve the removal of approximately 3 yards of soil.

FIBER OPTIC CABLE INSTALLATION

After the conduit is in place and tested, fiber optic cable is installed inside it. In general, Sempra Communications contractors would install fiber optic cable into conduit by blowing the fiber or using a powered pulling winch and hydraulic powered assist wheels. A pull line is attached to a plug that is pushed or pulled through the conduit by air pressure. When the plug emerges at the

end of the conduit section or access point, the pull line is attached to the fiber optic cable. The pull line is then pulled back though the conduit section, threading the cable through the conduit as it returns to the point of entry. A maximum pulling force of 600 pounds or as specified by the manufacturer would be applied to the lubricated cable using a pulling swivel break away rated at the required force. The cable would be spliced in splice cases located in handholes or manholes with sufficient slack allowed. The splices would be made with a profile alignment fusion splicing machine and protected by heat shrink tubing. If needed, surface restoration would be performed after fiber optic cable installation.

SPLICING OF CABLE ENDS AT ACCESS POINTS

Splicing of sections of fiber optic cable at access points would be conducted consistent with Sempra Communications specifications regarding equipment, personnel training, procedures, and testing. Appropriate lengths of excess (slack loop) fiber optic cable would be left at all splice locations to allow for cable expansion and contraction due to temperature and future splicing as may be necessary. Repairs to newly installed cable can be avoided through compliance with Sempra Communications specifications, standards, and procedures.

3.2.2 AERIAL FACILITIES

Aerial facilities are cables and their associated supporting hardware (e.g. suspension strands, clamps) placed on towers, poles or other supporting structures owned or provided by a third party such as a power company, telephone company or municipality. Generally, a joint-use or attachment agreement with the third party entity is required prior to installation. Depending on the location of the poles, traffic control permits may also be required from the governing authority.

Sempra Communications' basic method of installation for aerial facilities is to install suspension clamps at each pole or supporting structure location. Cables would then be supported (lashed) to high strength galvanized suspension strands held in place by the suspension clamps. Basic equipment required for aerial installations are bucket trucks and cable reel trucks or cable trailers.

ADSS used for aerial installation on utility poles, as previously discussed, would be installed below electrical wires. Under most circumstances, ADSS can be installed far enough below the electrical lines that the lines do not need to be shut down while the cable is installed. However, this type of cable is considered less desirable by telecommunications companies because it is more susceptible to vandalism and other damage because it would be positioned lower on the utility pole. All Sempra Communications' aerial installations would follow best industry practices and all requirements specified in the joint-use or attachment agreement with local jurisdictions.

BRIDGE ATTACHMENTS

Aerial facilities may also be in the form of a bridge attachment that is commonly used as a means for crossing rivers and streams to avoid unnecessary impacts to biological resources. Bridge attachments commonly occur either by handing the conduit to the exterior of the bridge structure or by installing the conduit within an existing cell or continuous void that runs the entire length of the bridge. To employ either of these methods, all work could be done from inside the bridge structure or from the bridge deck, therefore, no disturbance would occur to sensitive biological resources during construction. Conduit would be most commonly attached to bridges using one of the two following methods:

(1) Exterior hanging attachment. For this method, brackets are bolted every 10 feet (approximate) to the bridge deck, close to the bridge girder. The conduit would be trenched up to the bridge headwall (the wall constituting the principal vertical bridge support on each bank). A pit would be dug at the headwall, then the headwall would be core bored to allow the conduit to pass through the brackets along the bridge. This would happen at both ends of the bridge. The only instance where construction would occur on the ground under the bridge would be at the beginning and end of the bridge (in the vicinity of the headwall) during the core boring process and the bolting of the first one or two brackets. All other work would be done from the bridge deck.

(2) Existing Duct Cell Attachment. This method is used when there is an existing cell, or continuous void (empty space), that runs the entire length of the bridge inside the girder. An additional step is required for this method as opposed to the hanging option in that a “soffit entry door” must be constructed if none is present. This is merely a hinged door that is constructed in the bottom of the bridge. This would require that the worker be supported from the ground to install. Soffit entry doors would need to be constructed on both ends of the bridge. The headwalls are core bored and the conduit is laid in the bridge on cradles every ten feet. With the exception of the core bores and the soffit entry points, all construction would occur inside the bridge or from the bridge deck.

3.2.3 CABLE ON TRANSMISSION TOWERS

OPGW cable functions both as a fiber optic cable and a ground wire. Ground wires are wires that are installed on the tops of electrical transmission towers specifically to intercept lightning strikes and channel them to a ground to prevent damage to the tower or electrical lines. OPGW cable is typically installed by the electrical utility, usually replacing existing ground wires on top of the tower.

Along a straight alignment, approximately three miles of cable can be installed at one time. Curves or changes in elevation between towers reduce this length. The cable is pulled along the towers by a tensioner truck. An additional truck may be required near the tensioner to hold the reeled-in shield wire. The OPGW cable segments must be spliced together at each pull point by running the cable down to near the bottom of the tower and splicing the two segments in a box or

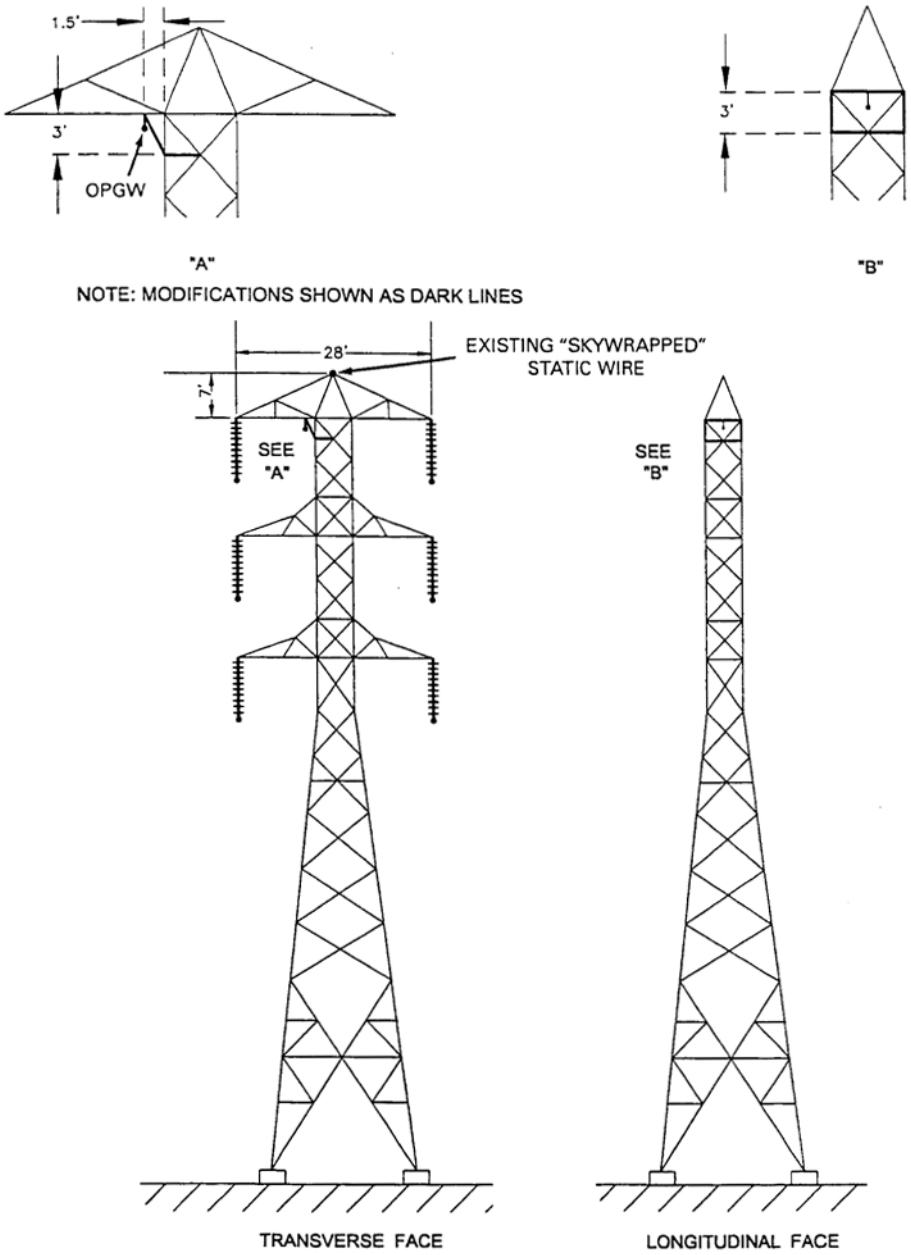
enclosure mounted either on one of the tower legs (approximately 15 feet above ground level) or on the ground adjacent to the tower.

CONSTRUCTION PROCEDURES

The construction procedure on the existing transmission tower lines is determined by whether there is skywrap on the existing tower static lines. The skywrap on the existing lines consists of 12 to 72 optical fibers contained in a rubber coated, 0.33-inch outside diameter cable with a central load-carrying core that is helically wrapped around the static line. Existing skywrap typically contains electronic system control channels for utility operation and maintenance. Two methods would be considered for installing new OPGW cable on transmission towers that have an existing skywrapped static line. The existing skywrapped static line may be left in place while new OPGW cable support structures are installed on each tower where the cable would be installed on the side of the tower. **Figure 3-22** illustrates a typical 230-kV tower modified for OPGW in this way. The alternative is to remove the existing skywrapped static wire and put temporary structures in place, install the new OPGW cable in the old static wire position, and wrap new skywrap around the OPGW cable. The old skywrap is then disconnected and the new skywrap is connected in its place. Because the existing skywrap would contain important electric system control channels, the sensitive "disconnect/reconnect" operation must be performed both quickly and carefully.

The more desirable method is to leave the existing skywrapped static wire on the tower and install OPGW cable support structures and OPGW cable at a new location on the side of the tower (Option 1 on **Figure 3-22**). This alternative is significantly less expensive and avoids taking important electric system control channels out of service. The tower modifications required to support the OPGW cable would comply with the safety requirements of the CPUC General Order 95 (G.O. 95).

For existing transmission tower lines that do not have skywrap, the construction sequence consists of removing the existing static wire and replacing it with OPGW cable in the same position. **Figure 3-23** illustrates this method for a typical 230 kV tower, and **Figures 3-24 and 3-25** illustrate this method for typical 138-kV and 230-kV towers. Where aerial navigation warning balls are installed on the static wire, they would be removed before the work begins and reinstalled on the OPGW cable. Most towers do not need modification to support the OPGW

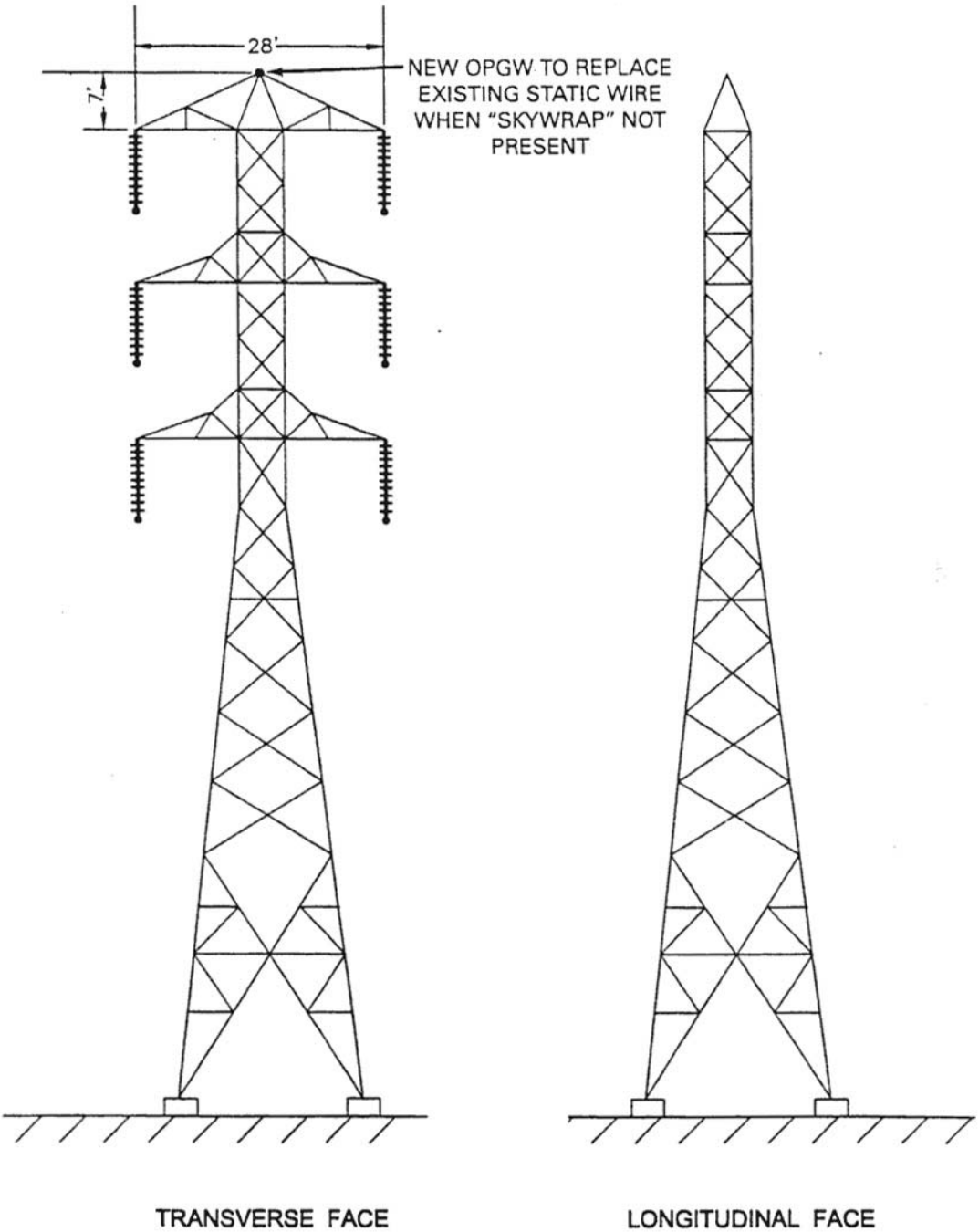


Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

SOURCE: Sempra Communications

Figure 3-22

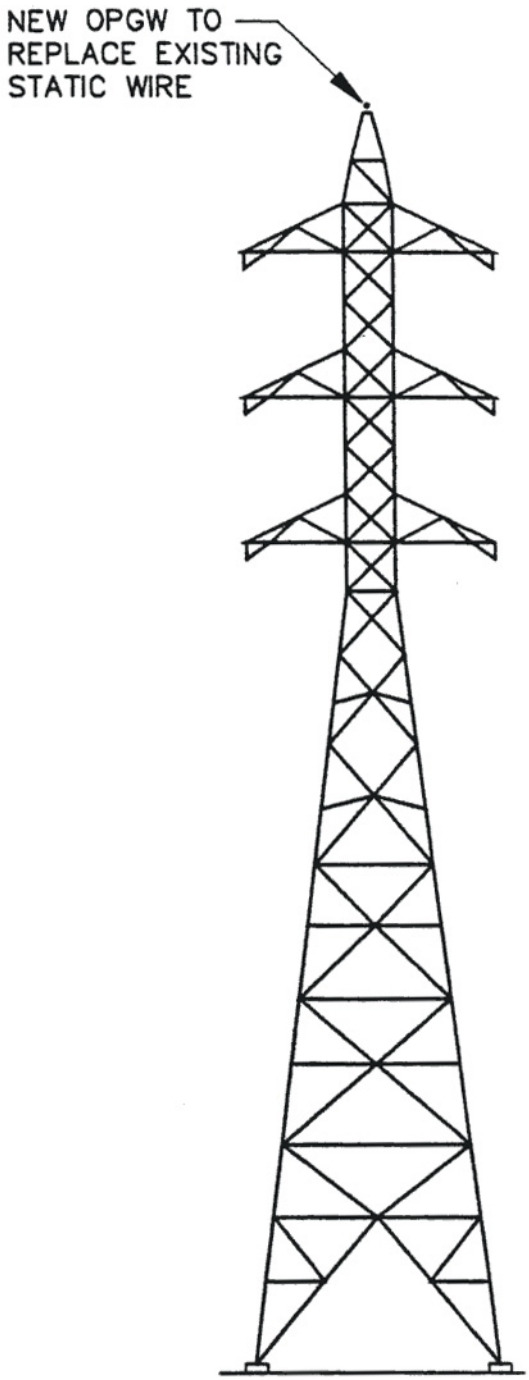
Typical 230 kV Tower
Modified for OPGW



SOURCE: Sempra Communications

Figure 3-23

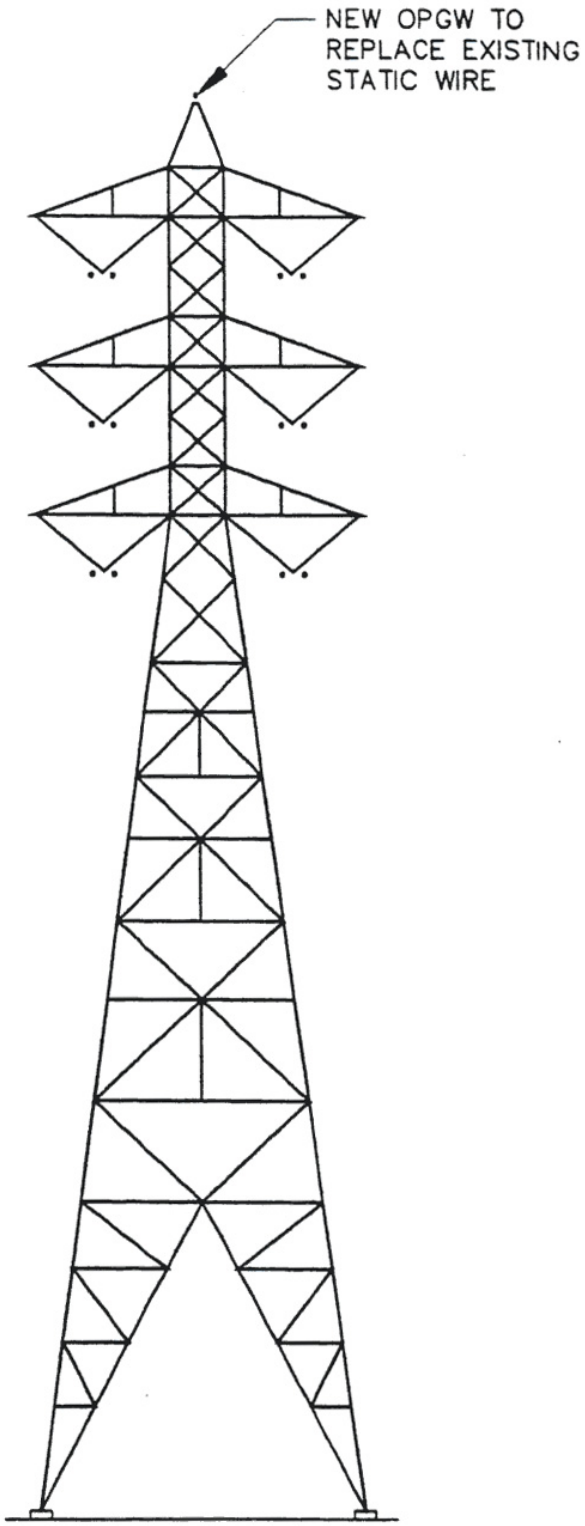
Typical 230kV Tower



SOURCE: Sempra Communications

Figure 3-24

Typical 138kV Tower



SOURCE: Sempra Communications

Figure 3-25

Typical 230kV Tower

cable. If required, the minor structural tower modifications required to support the OPGW cable are not visible to the casual observer and do not change the tower's appearance. All modifications would comply with the safety requirements of G.O. 95.

For all overhead transmission line installation, worker safety considerations require that the line(s) be deenergized during critical construction periods. The deenergization, or outage, would be coordinated with the California Independent System Operator (ISO) to ensure that customer service is not affected. In addition, electrical utilities, such as San Diego Gas and Electric (SDG&E), would require the use of their standard construction safety transmission line operating procedures.

Modification of Tower Structures

Existing tower structures that do not have existing skywrap would be modified by replacing the static wire with OPGW cable as shown in **Figures 3-24 and 3-25**. Minor reinforcements may be implemented to support the OPGW cable. Where transmission towers lines are used where there is existing skywrap, the existing static wire would remain in place. The tower structures would be modified to attach the OPGW cable in a different location. The modification would include adding small structural members, not exceeding eight feet in length, approximately 100 feet above ground.

Ground equipment used for tower modifications would generally include a line truck, a four-wheel drive personnel vehicle, and a boom/bucket truck. Operation of these vehicles would be restricted to the areas around the tower bases, the spurs connecting the towers, and the main access road.

Static Wire Removal and Stringing and Tensioning of OPGW

In many cases, the original static wire is in good condition, and it is attached to the new OPGW cable and used to guide the cable through the pulleys. If the existing static line cannot be used, a special line, called a sock line, is attached to the OPGW cable and pulled through to the end of the cable segment. The cable is pulled under tension to its design position. The workers then move the OPGW cable from the pulleys to an attachment at the tower peak. Typical pull lengths range from one to three miles.

For static wire removal, a pulley is attached to the existing tower arm or a temporary construction arm and mounted on each tower near the static wire attachment point at the top of the tower, and the existing static wire is then placed on the pulley. The static wire is pulled through the pulleys on each tower and spoiled on a drum located on the cable pulling truck. The original static wire is then hauled off site in a five-ton material truck.

Use of Helicopters

Helicopters may be a method used for the proposed OPGW cable installation to facilitate transmission tower modifications, and in preparation for stringing operations. A fuel truck would typically support the helicopter by following construction activities on existing access

roads within three to five miles of the helicopter. A cable pulling truck would also follow the helicopter and would be used to pull the static wire through the pulleys on each tower. While helicopters can significantly shorten construction time and reduce ground disturbance, they would not be proposed for use, unless necessary, in areas sensitive to noise (e.g., urban residential areas, horse ranches, and gnatcatcher habitat during breeding season).

3.2.4 USE OF EXISTING UNDERGROUND FACILITIES

Existing structures involve utilizing existing subsurface conduit from a utility company, municipality or other third party entity and installing company-owned cable within the existing conduit. Depending on the location of the maintenance holes, traffic control permits may be required by the governing authority prior to cable installation. Sempra Communications' basic installation practices require a cable reel truck or cable trailer, hydraulic cable pick-up wheel and, in certain instances, a compressed air cable blowing device. Additionally, new handholes/manholes may be required. All Sempra Communications' cable installations in leased structure would follow best industry practices and all requirements specified in the lease agreement.

Existing structures include abandoned pipelines or other existing underground conduit, as well as existing live gas distribution pipelines (e.g., fiber-in-gas-pipeline technology, or other suitable technology).

3.2.5 STAGING AREA ESTABLISHMENT

Staging areas for construction equipment, materials, fuels, lubricants, and solvents would be established along the proposed routes during construction to allow more efficient use and distribution of materials and equipment. Whenever feasible, no new staging areas would be established in undisturbed areas or on public lands. All staging areas would be located on private lands in existing contractor yards; existing commercial or industrial areas used for storing and maintaining equipment; previously cleared, graded, or paved areas; or level areas where grading and vegetation clearing are not required, whenever feasible.

The construction contractor, as needed, typically selects staging areas before and/or during construction. This practice is consistent with construction methods used throughout California and the United States. To ensure that sensitive environmental resources are adequately protected or are avoided, the locations of staging areas would be determined in consultation with qualified biologists and archaeologists, and local agencies where necessary. Because fuels, lubricants, and solvents would be stored on staging areas, all staging areas would be located at least 150 feet away from sensitive streams/drainages, when feasible, in accordance with Section 5652 of the California Fish and Game Code (CDFG Code § 5652).

3.2.6 ACCESS ROADS

Whenever feasible, access to construction sites would be by existing access roads to the utility, pipeline, road, or railroad rights-of-way. Some of the existing roads in isolated areas may require minor repairs to make them usable for construction. After completion of cable installation, access roads would be repaired, where required, to minimize future erosion.

New access roads, if necessary, would not be selected until the early stages of construction planning. Selection of new access roads would be determined after consultation with qualified biologists and archaeologist to ensure that sensitive environmental resources are adequately protected, avoided, or mitigated.

After installation, access to the fiber optic cable for maintenance would also be by existing access road to the utility, pipeline, road, or railroad rights-of-way, whenever possible. Activities following installation would consist mainly of repairing or replacing cable conduit because of storm damage, landslides, or other emergencies. In most situations, access to inspect damaged areas would be accomplished via helicopter or public roads.

3.2.7 EQUIPMENT ACCESS THROUGH STREAMS

Because not all rights-of-way follow improved roads and some areas may lack bridges, construction equipment may need to be transported through some streams. In most cases, small or ephemeral streams along existing utility rights-of-way that may be used by Sempra Communications would be in an area already crossed by existing maintenance or access roads. In most of these instances, the stream banks would be gradually sloped and water flows would be nonexistent or low enough to allow vehicles to drive through the channel without any change in the channel. In some cases, these access points may need to be modified to accommodate construction equipment by placing clean erosion control rock or installing temporary culverts in the streambed. Such modifications would be permitted through the appropriate resource agencies prior to construction and would not occur in streams supporting sensitive resources.

Prior to initiating construction activities, appropriate Sempra Communications personnel and a qualified biologist will review the rights-of-way to determine the most appropriate access method for each stream and will note these methods on the construction drawings.

3.2.8 AVOIDANCE OF SENSITIVE RESOURCES

Qualified biologists, archaeologists, and paleontologists would coordinate with appropriate Sempra Communication personnel in the field to design the fiber optic cable facilities and site regenerator stations, staging areas, and assist points in areas that do not support sensitive resources, to the extent feasible.

Sensitive resources (i.e., biological and cultural resources) would be avoided through various means identified during the project design phase. However, there would also be avoidance measures occurring in the field during construction as a result of preconstruction surveys or at

the direction of construction inspectors. If required, the construction technique would be coordinated through a resource specialist (i.e., wildlife biologist, wetland ecologist, botanist, archeologist, or paleontologist) familiar with the resource issue being avoided. Typical avoidance measures include minor rerouting of the fiber optic cable facilities around the sensitive resource within the disturbed right-of-way, boring under the resource, aerial spanning (aerial facilities across waters), or attaching the cable to an existing bridge. The location of all sensitive resources and the methods to avoid them would be shown on the construction drainages. All sensitive resource would be staked and flagged in the field and marked on the construction drawings, to the extent feasible.

STREAM/WATER CROSSINGS

Whenever possible, significant impacts would be avoided at sensitive drainages, including perennial stream crossings or streams that are flowing at the time of construction and have sensitive resources located at or downstream of the crossing. At all streams that provide important habitat, contribute significantly to water quality, or support sensitive or listed aquatic species, conduit and cable would be installed either by boring under the drainage or by attaching the cable to bridge, where available.

SENSITIVE BIOLOGICAL SITES

Where appropriate, Sempra Communications will conduct wildlife, wetlands, riparian, and early- and late-blooming botanical studies to ensure that sensitive biological resources are identified and completely avoided or any impacts on sensitive biological resources that cannot be avoided are minimized to less-than-significant levels. Biologists will work closely with appropriate Sempra Communications personnel and resource agency staff to site the fiber optic cable facilities in areas with no sensitive resources.

SENSITIVE ARCHAEOLOGICAL RESOURCES

Whenever ground disturbance is being considered in previously undisturbed areas, Sempra Communications will conduct archaeological and paleontological studies, including record searches and field surveys, if warranted, to ensure that sensitive archaeological resources are identified and completely avoided or any impacts on sensitive archaeological resources cannot be avoided are minimized to less-than-significant levels. Archaeologists will work closely with appropriate Sempra Communications personnel and resource agency staff to site the cable route and associate facilities in areas with no sensitive archaeological resources.

3.2.9 SURFACE RECLAMATION

The short-term objectives of reclamation are to control accelerated erosion and sedimentation and minimize impacts on adjacent waters, land uses, and other sensitive resources. Properly executed construction practices and timely progress will mitigate temporary and short-term construction impacts to less-than-significant levels. Long-term objectives include erosion and

sedimentation control, as well as reclamation of topography to preinstallation conditions (i.e., conditions prevailing before installation of the conduit and cable). The reclamation effort will focus on the following objectives, where required:

- Topsoil salvage, storage, and replacement.
- Reclamation of right-of-way and associated maintenance and access roads.
- Reclamation of drainage and wetland crossings.
- Monitoring to ensure long-term success.

3.2.10 FACILITY OPERATION AND MAINTENANCE

Ground-disturbing activities associated with ongoing operation and maintenance of telecommunications projects are normally minor to nonexistent. Best management practices such as erosion and sediment control measures would be implemented. In most emergency situations requiring immediate attention, such as a fiber cut, access to inspect damaged areas would be accomplished via helicopter or public roads or existing access roads.

3.3 CONSTRUCTION EQUIPMENT AND WORKFORCE

As previously discussed, multiple installation techniques for fiber-optic cable installed both underground and aboveground would be used for the project. This subsection outlines the types of crews, typical size of each crew (although the actual number of crew personnel could vary depending on the type of work to be done and the prevailing conditions at the time of construction), and equipment associated with proposed construction processes. The crew and equipment for each process is called a “spread.” The contractors selected by Sempra Communications would determine the most efficient methods for completing the work within the parameters specified by Sempra Communications.

3.3.1 TRENCHING AND CONDUIT INSTALLATION

Directional Drill Spread for Boring

Crew

Directional Drill Crew. Typically consists of six to eight persons. This crew would perform directional drilling to install conduit. Its functions would include digging the hole where directional drilling would be initiated, drilling under planned areas, pulling back conduit, and restoring construction areas to their original condition. This crew would ensure that any directional drilling spoils are transported to an appropriate facility for disposal.

Equipment

1. (1) Water Truck
2. (1) Vacuum Trailer
3. (1) Drilling Machine
4. (1) Rubber Tired Backhoe

5. (1) BobCat or Mini Excavator

Dirt Trench Spread for Open Trenching

Crew

Dirt Trench Crew. Typically consists of eight persons. This crew would dig the open trench in non-paved alignments such as railroad rights-of-way. The crew would excavate the trench for the conduit, install conduit, install handholes and/or manholes at appropriate intervals, refill the trench, compact trench fill, and restore surface. Most of the excavated dirt would be used to refill the excavation; any dirt trench spoils would be transported to an appropriate facility for disposal.

Equipment

1. (1) Backhoe
2. (1) Tractor
3. (1) Trencher
4. Pickup trucks

Street Trench Spread for Open Trenching

Crew

Street Trench Crew. Typically consists of ten persons. This crew would be responsible for open trenching in roadway rights-of-way. The crew would excavate the trench, install the conduit on native soil, install manholes and/or handholes at appropriate intervals, refill the trench, compact trench fill, and repave the roadway surface. Most of the excavated dirt would be used to refill the excavation; any street trench spoils such as paving materials would be returned to the asphalt manufacturer or transported to an appropriate facility for disposal.

Equipment

1. (2) Rubber Tired Backhoe
2. (1) Tilt Deck Dump Truck
3. Repaving Spread:
   - Paving Machine
   - Roller
   - Windrow Elevator
   - Grinder
4. Pickup trucks

3.3.2 OPGW CABLE INSTALLATION

Cable Installation Spread for Hanging OPGW on Transmission Towers

Crew

Installation Crew. Typically consists of 15- to 20 persons. This crew would be responsible for installing the OPGW on the transmission towers using the applicable method as previously

discussed. All overhead work would be performed with the transmission lines deenergized in accordance with ISO requirements.

Equipment

1. (3) 5-Ton Truck (material truck)
2. (2) Carry-alls
3. (2) Pick-ups
4. (1) Cable Dolly
5. (1) Tensioner Machine
6. Pulling Machine
7. (2) Splicing Vans
8. (1) Helicopter Crew (as suitable)
9. Crane

3.3.3 CABLE INSTALLATION

Cable Installation Spread for Pulling Cable in Existing or Previously-Installed Conduit

Crew

Cable Pulling Crew. Typically consists of eight persons. This crew would place fiber optic cable in the conduit. This crew would insert a cable-pulling line into the conduit, attach the line to the optic fiber cable, and pull the cable through the conduit. The cable would be spliced by the crew at manholes and/or handholes as needed.

Equipment

1. (1) 2-Ton Truck
2. (1) 1-Ton Truck (Winch Truck)
3. (1) Fiber Trailer
4. (3) Capstan Intermediate Assist

3.3.4 EQUIPMENT MAINTENANCE AND REFUELING

The equipment used for proposed projects will need periodic maintenance and refueling. These activities will be accomplished responsibly, using best management practices. To reduce the potential of contamination by spills, no refueling, storage, servicing, or maintenance of equipment will take place within 150 feet of drainages or other sensitive environmental resources (CDFG Code § 5652). No refueling or servicing will be done without absorbent material or drip pans underneath to contain spilled fuel. Any fluids drained from the machinery during servicing will be collected in lead-proof containers and taken to an appropriate disposal or recycling facility. If these activities result in damage to or accumulation of a product on the soil, it will be assessed and disposed of properly. Under no circumstances will contaminated soils be added to a spoils pile.

On-site refueling of construction equipment will be done by mobile refueling trucks. The refueling trucks will be independently licensed and regulated to haul and dispense fuels. This licensing and regulation will ensure that the appropriate spill prevention techniques are implemented.

Restrictions will be placed on all equipment refueling, servicing, and maintenance supplies and activities. All maintenance materials, oils, grease, lubricants, antifreeze, and similar materials will be stored off-site in staging areas. If these materials are required during field operations, they will be placed in a designated area away from site activities and sensitive resources.

3.4 CONSTRUCTION SCHEDULE

Construction of subsequent activities that fall within the scope of this Program EIR are scheduled to start as soon as possible following receipt of all necessary authorizations from the CPUC and other applicable governing agencies. Prior to the start of construction, Sempra Communications would acquire all permits and approvals and would provide copies to the CPUC. Construction on some future activities may be subject to various scheduling windows, i.e., time of day or year, to accommodate access constraints, such as roadway rush hours, or to avoid undesirable environmental effects, such as disruption of the breeding season of a sensitive species. Actual schedules and sequence of segment construction may be revised in response to environmental constraints (seasonal work windows, biological, archeological) or the permit process.

3.5 REGULATORY ENVIRONMENT

Subsequent activities may affect many jurisdictions and require consultation, approval, and permitted authorization from various federal, state and local agencies. Activities as may be subject to state and federal regulations to minimize effects. The following is a list of regulations and approvals that Sempra Communications anticipates may apply to the proposed project.

- Section 402 of the Clean Water Act requires that a National Pollution Discharge Elimination System (NPDES) certification be obtained from the applicable Regional Water Quality Control Board (RWQCB).

- Section 404 of the Clean Water Act requires the issuance of an individual or nationwide permit from the Corps before discharging backfill into the Waters of the United States, including wetlands.

- Section 7 and Section 10 of the Federal Endangered Species Act (ESA) requires consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) regarding measures to avoid harm to plant, fish, and wildlife species that are federally listed as threatened or endangered species for all federal projects.

- Section 106 of the National Historic Preservation Act requires examination of cultural resources before various federal agencies can provide permits under their jurisdiction.

Section 106 establishes requirements and protocols for pre-construction cultural resource surveys and mitigation of impacts on cultural resources.

- Section 1603 of the CDFG Code requires a Streambed Alteration Agreement from CDFG before any action is taken that would obstruct or divert the flow or alter the channel of designated drainages, rivers, streams, and lakes. Potential impacts must be mitigated.
- California State Lands Commission (CSLC) requires an easement (Public Resources Code 6301) for lands under sovereign ownership of the state that are crossed by the route below the ordinary high-water mark of tidal waters and below the low-water mark of nontidal waterways.
- Approval from the California Reclamation Board (CRB) is required for work that would affect levees and waters within CRB jurisdiction.
- Several state regulations protect certain types of flora and fauna, including the California Endangered Species Act of 1984, the California Native Plant Protection Act of 1977, and section of the CDFG Code.
- California Coastal Commission (CCC) regulations govern activities in the coastal zone. A permit is required from CCC for all non-exempt work within the Coastal Zone.
- No permits directly related to noise would be required for subsequent project construction or operation. However, local noise ordinance standards would apply to construction activities.
- Sempra Communications would acquire encroachment permits for work within public roadways. For state highways, encroachment permits from the California Department of Transportation (Caltrans) would be required. For local roads, Sempra Communications would acquire encroachment permits from appropriate local jurisdictions.

3.6 PROTOCOLS

This section discusses construction, maintenance, and operational protocols that Sempra Communications would employ to avoid and minimize impacts to natural, archaeological, visual and other resources.

3.6.1 GENERAL PROTOCOLS FOR POTENTIAL PROJECT IMPACTS

- All subsequent activities would incorporate construction methods and practices that would either avoid to the extent feasible or minimize physical impacts.
- Vehicles would be kept on access roads to the extent feasible.
- A 15-mile-per-hour speed limit would be observed on dirt access roads to allow wildlife species to disperse.

- No wildlife, including rattlesnakes, may be harmed, except to protect life and limb.
- Plant or wildlife species may not be collected for pets or any other reason.
- Wildfires would be prevented or minimized by exercising care when driving and by not parking vehicles where hot engines could ignite dry vegetation.
- All personnel would participate in an employee training program conducted by Sempra Communications, with annual updates. The training program would consist of:

    1. a brief overview of endangered species biology and the legal protections given to endangered species,
    2. the habitat requirements of endangered species,
    3. the status of endangered species under federal and state endangered species acts,
    4. measures taken for the protection of endangered species and their habitats, which may be affected by construction, and
    5. a review of the general and specific operational protocols of this section.

3.6.2 SPECIFIC PROTOCOLS FOR POTENTIAL PROJECT IMPACTS

VEGETATION CLEARING

- Vegetation clearing would not be allowed without first verifying the vegetation contains no sensitive plant species, and that there are no vernal pools, active nests, burrows, or active dens of sensitive species affected.
- Vegetation to be cleared would be flagged, as required, prior to any clearing.
- Mowing would be used as an alternative to vegetation clearing when permanent access to construction areas and facilities is not required.
- Mowing of vegetation for access would be limited to a 12-foot width and no less than 4 inches in height.
- To limit potential impacts to vegetation, existing access roads would be used whenever possible.

DIGGING AND GRADING

- Prior to any required excavation or grading, all archaeological, historical, mineral, or biological resources identified in existing environmental documents or other resources would be flagged or otherwise identified.

- Spoils created during construction would be disposed of only on previously disturbed areas or used immediately to fill eroded areas.
- All steep-walled trenches or excavations used during construction would be inspected twice daily (early morning and evening) and prior to backfilling to protect against wildlife entrapment.
- Appropriately sized equipment would be used to minimize disturbance during grading, addition of fill, and compaction.

AIR QUALITY

- Fugitive dust created during clearing, grading, earth-moving, excavation, or other construction activities would be controlled by regular watering.
- At all times, fugitive dust would be controlled by limiting on-site vehicle speed to 15 miles per hour.

WATER QUALITY/HYDROLOGY

- Erosion would be minimized on access roads and other locations primarily with water bars, wherever necessary.
- Erosion control during construction, wherever necessary, in the form of intermittent check dams and culverts would also be considered to prevent alteration to natural drainage patterns and prevent siltation.
- Appropriately sized equipment would be used to minimize disturbance during grading, addition of fill, and compaction.

WATERS OF THE U.S., INCLUDING WETLAND COMMUNITIES AND RIPARIAN VEGETATION

- Impacts to wetlands would be minimized by avoiding pushing soil or brush into washes or ravines.
- Staging/storage areas for equipment and materials would be located outside of riparian areas.

CHAPTER 4.0

ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

4.1 AESTHETICS

4.1.1 SETTING

For the purposes of a CEQA environmental review, the term "aesthetics" pertains to the visual quality of an area. Visual quality is the character, condition, and quality of a scenic landscape or other visual resource and how it is perceived and valued by the public. The loss or alteration of natural aesthetic features, reduction of or intrusion upon vistas, or introduction of contrasting urban features could diminish the value of aesthetic resources in the project area.

Within the project area, aesthetically significant features occur in a diverse array of environments, from urban centers to rural agricultural lands to natural woodlands and deserts. The mix of climate, topography, and flora and fauna found in the natural environment, and the diversity of style, composition, and distribution of the built environment, provides an extraordinary range of visual features in the project area. Natural features include land and water resources such as parks and open space areas, wilderness areas (mountains and deserts), beaches, and natural water sources. Elements of the visual environment that have been constructed to resemble natural features, such as manmade lakes are also included in the aesthetic environment. Rural and agricultural settings also may include features or landscapes valued for their scenic or aesthetic qualities. Features of the built environment that may have visual significance include individual structures or groups of structures that are distinctive due to their aesthetic, historical, social, or cultural significance or characteristics. The visually significant built environment may include architecturally appealing buildings or groups of buildings, landscaped freeways, or a location where an historic event occurred.

Throughout the project area, views of the coast and various mountain ranges are considered valuable visual resources. Views of the coast occur in locations in Marin, San Francisco, San Mateo and Santa Cruz Counties in northern California and in Los Angeles, Orange, and San Diego Counties in southern California. Views of various mountain ranges occur throughout the project area: the Coast Ranges, including the Santa Cruz Mountains and Diablo Range in the San Francisco Bay Area, the Coast Ranges and Sierra Nevada in the Central Valley, the Transverse Ranges, including the Santa Monica, San Gabriel, and San Bernardino Mountains in Los Angeles and San Bernardino Counties, and the Peninsular Ranges, including the Santa Ana

and San Jacinto Mountains, paralleling the coast in Orange and San Diego Counties and the western regions of Riverside and Imperial Counties.

Other natural features that may have visual significance are the numerous rivers, streams, creeks, lakes and reservoirs located within the project area, including, but not limited to, the Sacramento-San Joaquin Delta and San Francisco Bay, the Salton Sea, Pyramid Lake, Lake Arrowhead, Big Bear Lake, Lake Havasu, and multiple reservoirs throughout the state.

PROJECT AREA REGIONS

This section presents an overview of the visual setting of the project area broken into the following regions: the San Francisco Bay Area, the Central Valley, Los Angeles, Orange, and San Diego Counties, the Inland Empire, and Imperial County. The project would be located primarily in the urbanized areas of these counties.

San Francisco Bay Area

The visual setting of the San Francisco Bay Area (including the project-area counties of Marin, San Francisco, Contra Costa, Alameda, San Mateo, Santa Clara, and Santa Cruz) is dominated by the north-south trending Coast Ranges which surround San Francisco Bay, the Bay itself, and the Pacific Ocean. The Coast Ranges include the hills and headlands of Marin County, the Santa Cruz Mountains paralleling the coast along the San Mateo Peninsula, and the Berkeley-Oakland Hills and Diablo Range east of the Bay. The natural landscape of Marin County includes rolling oak-studded hills, redwood forests, intermittent stretches of beaches and rugged sea cliffs rising dramatically above the Pacific along the coast. San Francisco's distinctively hilly topography, where in some neighborhoods rows of houses border steep staircases instead of streets, contributes to the City's unique visual character. South of San Francisco, the Santa Cruz Mountains include rolling grasslands and oak studded hills at lower elevations and dense mixed-hardwood and evergreen forests in the higher elevations, extend along the San Mateo Peninsula through Santa Cruz County. The mountains, the rugged Pacific coastline, and occasional farm fields between them dominate the visual landscape along the rural western half of the peninsula. The eastern half of the peninsula along San Francisco Bay and including the Santa Clara Valley, is highly urbanized. The Diablo Range extends through much of Alameda and Contra Costa Counties, east of San Francisco Bay, and the eastern half of Santa Clara County. The Diablo Range consists mainly of grasslands, chaparral and oak savannah, reflecting the relatively sparse rainfall it receives. Both Alameda and Contra Costa Counties have a mix of highly urbanized, suburban, and rural areas. Along the San Francisco Bay Area, remnant salt marshes and wetlands also contribute to the region's scenic landscape.

Central Valley

Two project area counties, Sacramento and Fresno, are located in the Central Valley aesthetic region. Also called the Great Valley, the Central Valley consists of two distinct sub-regions, the Sacramento Valley, in the north, and the San Joaquin Valley, in the south. The wide, flat Central

Valley lies between the Sierra Nevada on the east and the Coast Ranges on the west; it is, on average, 40 miles wide and some 450 miles long from north to south, extending from Mt. Shasta (in the north) to the Tehachapi Mountains (in the south). Filled with deep alluvial soils that make it a rich agricultural region, much of the Central Valley is planted in field crops, vineyards, and orchards of fruit and nut trees; poultry, dairy, and beef cattle farms also are located here. The Valley's natural features include the two major river systems and the Sacramento-San Joaquin Delta to which they drain, stands of valley oaks, and wetlands that attract millions of migratory birds annually.

Los Angeles County

Los Angeles County is 4,081 square miles in size and has an 81-mile coastline; its topography is dominated by the Transverse Ranges and the Los Angeles Basin. Distinct geographic region include the Antelope Valley in the northern part of the county, the Angeles National Forest-San Gabriel Mountains region south of the Antelope Valley, the highly urbanized San Fernando Valley between the San Gabriel Mountains and the Santa Monica Mountains, the Santa Monica Mountains in the westernmost part of the County, and Los Angeles Basin.

Orange County

Orange County is a geographically diverse area of mountains, hills, flatlands and shoreline. The major topographic features are the Los Angeles Basin and the Peninsular Ranges, which also extend through San Diego and Riverside Counties. The highly urbanized Los Angeles Basin dominates the northwestern part of the county. Rising above the Los Angeles Basin to the east, along the eastern boundary of the county, is the chaparral-covered slopes of the Chino Hills and Santa Ana Mountains of the Peninsular Ranges. Forested areas scatter the higher elevations along the border of Riverside County. The southern part of the county is characterized by chaparral and scrub covered slopes of the San Joaquin Hills and Laguna Hills, and a mix of open, undeveloped areas and urban centers, including the towns of Mission Viejo and Laguna Hills. Forty-two miles of beaches line the coast.

San Diego County

Along with Imperial County to the east, San Diego County is the southernmost county in the state. The visual landscape of the county is dominated by its 70 miles of coastline and the Peninsular Ranges, which include mountains of the Cleveland National Forest and the more arid mountains and valleys of the Anza Borrego Desert in the eastern half of the county. Urban development is located primarily in the western part of the county, and is most concentrated in the county's southwestern quadrant.

Inland Empire

The landscape of San Bernardino and Riverside Counties is dominated by the Transverse Ranges in southwestern San Bernardino County, the Peninsular Ranges, which extend through the western half of Riverside County**,** and the creosote, mesquite, and Joshua trees of the Mojave

Desert. Urban development is centered in the fast-growing metropolitan region around the cities of San Bernardino and Riverside, in the southwestern corner of San Bernardino and northwestern corner of Riverside county, respectively.

Imperial County

Located along the southern and southeastern border of California, Imperial County is a sparsely populated county located in the Colorado Desert geomorphic province. The county's visual landscape is dominated by the mountains and valleys of the Anza Borrego desert in the southwest of the county and the Salton Sea, the state's largest inland sea. In the northwest, the Imperial Valley, which is largely in agriculture is the dominant feature while in the south central region of the county, and the East Mesa and Sand Hill dunes and Chocolate Mountains represent the major feature of the eastern half of the county. Urban development is located primarily in communities of the Imperial Valley.

4.1.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO AESTHETICS

There are no federal aesthetics permits or regulations applicable to the proposed project. The California Department of Transportation (Caltrans) has a State Scenic Highways program to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The program entails the regulation of land use and density of development, attention to the design of sites and structures, attention to and control of signage, landscaping, and grading, and the undergrounding of utility lines within the view corridor of designated scenic roadways. The local jurisdiction is responsible for adopting and implementing such regulation. The project area has roads that are either designated or eligible to be designated state scenic highways (see **Table 4.1-1**). Section 320 of the California Public Utilities Code requires that all new or relocated electric and communication distribution facilities within 1,000 feet of an officially designated scenic highway and visible from that highway be buried underground where feasible.

Various jurisdictions within the project area, such as some cities, counties, and regional agencies, provide guidelines within their general plans or regulations to preserve and enhance visual quality and aesthetic resources.[1] Because of the size and diversity of the project area, there are no uniform standards that apply to all regions within it. As will further be discussed in Land Use and Planning, Section 4.9 of this chapter, the zoning ordinance is the primary mechanism used by jurisdictions to implement the goals and objectives of the general plan. The value attributed to a visual resource generally is based on the characteristics and distinctiveness of the resource and the number of persons who view it. Vistas of undisturbed natural areas, unique or unusual features forming an important or dominant portion of a viewshed, and distant vistas offering relief

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

TABLE 4.1-1
ROUTES DESIGNATED OR ELIGIBLE TO BE DESIGNATED STATE SCENIC HIGHWAYS

County	Officially Designated State Scenic Highways	Eligible State Highways Not Officially Designated as Scenic	Other Designated Scenic Routes
Alameda	I-580, I-680	I-80, SR 84, I-580	
Contra Costa	SR 24	SR 160	
Fresno		SR 168, SR 180, SR 198	
Imperial		I-8, SR 78, SR 111	
Los Angeles	SR 2	SR 1, SR 27, SR 39, SR 57, US 101, SR 118, SR 126, I-210	Historic Parkway-I 110
Marin		SR 1, SR 37, US 101	
Orange	SR 91	SR 1, SR 57, SR 74, SR 91	
Riverside	SR 62, SR 74, SR 243	I-10, I-15, SR 62, SR 71, SR 91, SR 74, SR 111	
Sacramento	SR 160		County Scenic Road
San Bernardino	SR 20	SR 2, I-10, I-15, SR 28, I-40, SR 62, SR 91, SR 127, SR 138, SR 142, SR 173, SR 189, SR 330, SR 247	
San Diego	SR 75, SR 78, SR 125	I-5, I-8, SR 52, SR 76, SR 78, SR 79, SR 94, SR 163	
San Francisco		SR 1, I-80	
San Mateo	SR 1, SR 35, IS 280	SR 1, SR 92	
Santa Clara	SR 9	SR 17, SR 35, SR 152, SR 280	
Santa Cruz		SR 1, SR 9, SR 17, SR 35, SR 129, SR 152, SR 236	

SR = State Route
US = US Highway
I- = Interstate Highway

NOTE: Designation or eligibility may apply only to sections of a given route within a county. In some cases, within the same county some sections of a route may be designated and other sections eligible but not designated.

from less attractive nearby features are frequently considered to be scenic resources. In some instances a case-by-case determination of scenic value may be needed, but often there is agreement within the relevant community about which features are valued as scenic resources.

4.1.3 IMPACTS AND MITIGATION MEASURES

APPROACH TO ANALYSIS

To analyze the aesthetics impacts of the proposed project, the visual changes expected to result from project implementation were identified based on information presented in Chapter 3, Project Description, and the significance of such changes were evaluated based on the significance criteria (below).

SIGNIFICANCE CRITERIA

The analysis of the significance of project impacts is based on the CEQA Environmental Checklist criteria (CEQA Guidelines Appendix G). A project could have a significant effect on visual quality if it:

- has a substantial adverse effect on a scenic vista;
- negatively affects or damaged aesthetically significant resources;
- substantially degrades the existing visual character or quality of the project site; or
- creates a new source of light or glare.

In general, the project would be considered to have a significant aesthetic impact if it would result in the addition of significant structures that conflict visually with the existing setting, added substantial visual clutter or disorder, or substantially disrupted the surrounding visual context, especially if such changes were of more than temporary duration.

IMPACT MECHANISMS

A project may involve changes to the natural or built environment and thereby cause impacts on the visual environment. Visual impacts of the proposed project could potentially result from construction-related ground disturbance or vegetation removal, installation of cable markers, or construction of regenerator/OP-AMP stations. The significance of an impact would be based on several factors, such as the existing visual character of the area, the expectations and number of individuals viewing the area, and the location of the impact (foreground, middle ground, or background).

IMPACT ASSESSMENT

The following presents a programmatic-level discussion of potential project impacts on aesthetic resources. The aesthetic values that are important in one area can be relatively less important in another location, indicating the complex nature of aesthetics. Preferred architectural style, expectations for landscaping and tolerance for visual clutter is commonly a discriminator of

aesthetic values. Context is also an important consideration in assessing aesthetic impacts. For example, construction of an OP-AMP station could be expected to have little if any visual impact in an industrial area, but might have a significant visual impact if located in an area of otherwise undisturbed vegetation.

In general, the proposed project would have minimal aesthetic impact. Fiber optic cable facilities could be located within the viewshed of residential neighborhoods, housing developments, schools, commercial and industrial centers, roadways, and recreational and open space land uses; streets where facilities may be proposed may be developed with trees and landscaping that could be impacted by construction. The fiber optic cable facilities may be installed underground within existing roadway, utility, or railroad rights of way or overhead on transmission line towers or utility distribution poles.

If installed underground, the facilities would not be visible following construction, although ground disturbance from installation could potentially remain. Visible effects from disturbance of vegetation may be particularly long-lasting in arid areas (e.g., much of the southern California portion of the project area), where vegetation is slow to regenerate. Where other underground utility lines are already present, signs indicating their presence would already be visible at intervals along the alignment. For bridge crossings, facilities may be attached to the exterior of the bridge structure or installed in an existing cell within the bridge, as described in Chapter 3, Project Description. An exterior attachment would have the potential to conflict visually with the architecture of the bridge. Such conflict would be more likely in cases of historic or architecturally distinctive bridges.

If the fiber optic cable facilities were installed overhead, it would be placed with already existing overhead lines, rather than introducing new visual elements to the particular landscape. Cable installed on transmission line towers could be located at a different level from the electric wires, potentially contributing to “visual clutter,” depending on the setting. As indicated in Chapter 3, Project Description, the structural modifications to transmission towers to support OPGW would be minor and would not be visible to the casual observer. Because electric transmission corridors in general constitute substantial features of the settings in which they are located, the potential for the addition of fiber optic cable – even when hung at a different level from existing wires – to substantially degrade visual resources in such settings would likely be small.

Splice boxes and regenerator and OP-AMP stations would be above-ground structures and therefore would have the potential to conflict with the visual quality of both natural and built environments in which they are located. Splice boxes are approximately 3 feet square and 10 inches deep and look similar to the electrical boxes commonly attached to utility poles. Because the splice boxes also would be attached to existing utility poles or transmission towers, they would not constitute a substantial new element to the visual environment and therefore would not constitute a significant adverse impact on visual quality. To the extent feasible, OP-AMP and regenerator stations would not be located in areas that are designated as scenic. The lighting at each OP AMP and regenerator station would be equipped with sky shielding and

night timers or motion detectors to minimize night light pollution. Utility access vaults would be flush with ground level or in otherwise unobtrusive locations.

The construction phase would be the source of much of the disturbance to the visual setting associated with the proposed project. Underground installation of the fiber optic cable facilities would be accomplished using open trenching, plow and trench installation, or directional boring techniques, and would cause surface disturbance for a short period during installation, as described in Chapter 3, Project Description, but otherwise would have minimal, if any, long-term visual impacts. Overhead installation would be accomplished by attaching suspension clamps on poles and stringing the cable with the use of bucket trucks and cable reel trucks or cable trailers. This equipment could constitute additional "visual clutter" in the roadways or other utility rights of way where cable installation is taking place. However, because installation would proceed at an average rate of 100 to 300 feet per day, the effects of such installation on the visual landscape in any particular location would be quite temporary and therefore minor. Helicopters could be used to install the majority of the proposed OPGW on transmission towers. A helicopter would constitute a substantial physical component in almost any project-area landscape. However, because the use of helicopters would significantly shorten construction time, the short duration of a helicopter's present in any single location would likely reduce to insignificance its impact on visual quality. A potential exception to this assessment may occur if helicopters were used for cable installation over a particularly wide and open area that was part of a scenic view. In such a case, the visual disruption would be of longer duration than normally would be expected. The likelihood of such a scenario is remote, however, since transmission towers and corridors are not generally considered visually appealing and would likely already be considered visual disruptions of the scenic landscape in which they occurred.

As discussed in Chapter 3, Project Description, Sempra Communications would employ construction, maintenance, and operations protocols to avoid or minimize impacts to visual resources.

Impact AES-1: The project could have an adverse effect on a scenic vista or damage a scenic resource. (Potentially Significant)

As discussed above, in general the proposed project is unlikely to substantially degrade or damage scenic resources because of the nature of the project, because protocols would be followed to minimize possible construction-related impacts, and because construction-related impacts on scenic resources would be of short duration. The fiber optic cable facilities could be installed underground within existing rights-of-way or overhead with existing electric distribution or transmission lines, attached to either existing or new brackets. However, the project could have significant impacts on scenic resources if regeneration and OP-AMP stations or other substantial aboveground project components were located close to or within a scenic vista or scenic resource area.

Mitigation Measure AES-1a: Sempra Communications shall identify scenic resources within 1,500 feet of the proposed activity and attempt to locate all permanent substantial aboveground features a minimum of 1,000 feet away from scenic resources.

Section 320 of the CPUC code requires new or relocated electric and communication distribution facilities to be buried underground when located within 1,000 feet of a designated scenic highway and visible from that highway. **Table 4.1-1** presents of preliminary list of potentially affected scenic routes within the project area.

Significance after Mitigation: Less than significant.

Impact AES-2: Minor changes in the existing visual character or quality of a site could result from project construction and operation. (Potentially Significant)

As discussed above, in general, the proposed project would not substantially degrade existing visual character or quality within the project area due to the nature of the project and because protocols would be followed to minimize possible construction-related impacts, which, it is noted, also would be of short duration, and operational protocols would be followed to minimize the project's potential long-term effects on visual quality.

Cable installation could occur underground primarily within existing rights-of-way or overhead with existing electric distribution or transmission lines. The underground facilities would therefore not be visible after the site is cleaned up and restored; site clean-up and restoration procedures are part of the proposed project. Trenches and potholes excavated as part of the construction process could constitute negative aesthetic features, albeit of temporary duration. Depending on the location of subsequent activities and the regeneration and OP-AMP stations, there is a possibility that the project could have significant visual quality impacts if these facilities conflicted with the architecture of existing structures or with the natural setting in which they are located. As described Chapter 3, Project Description, and noted above in this section, the proposed project includes management, construction and operational protocols to avoid or minimize impacts beyond the construction period and ensure compliance with applicable standards and regulations.

Mitigation Measure AES.2a: Sempra Communications shall minimize visual impacts of fiber optic cable facilities and comply with local regulations concerning architectural design and landscaping, shall keep construction and staging areas orderly and free of trash and debris, and shall restore areas disturbed by project construction along the proposed route to their pre-project condition to the extent feasible.

Significance after Mitigation: Less than Significant.

REFERENCES – Aesthetics

California Department of Finance (DOF), "E-1 City/County Population Estimates, with Annual Percentage Change, January 1, 2000 and 2001," http://www.dof.ca.gov/HTML/DEMOGRAP/E-1table.xls (website accessed 11 April 02).

4.2 AGRICULTURAL RESOURCES

4.2.1 SETTING

The project area encompasses a number of land uses in 15 counties within the State of California, including agricultural and cattle grazing lands. Some of the project area is designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, or Grazing Land. **Table 4.2-1** defines the criteria set by the California Department of Conservation's Division of Land Resource Protection for each of these categories known as Important Farmland Categories) as part of their Farmland Mapping and Monitoring Program (FMMP).

TABLE 4.2-1
CALIRFORNIA DEPARTMENT OF CONSERVATION,
DIVISION OF LAND RESOURCES IMPORTANT FARMLAND CATEGORIES

Important Farmland Category	Criteria
Prime Farmland	Farmland with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.
Farmland of Statewide Importance	Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.
Unique Farmland	Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
Farmland of Local Importance	Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
Grazing Land	Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

Additionally some parcels are held in accordance with the California Land Conservation Act of 1965, commonly referred to as the Williamson Act. The majority of the project area is located within urbanized metropolitan areas, while some portions such as Imperial and parts of San Diego

counties are comprised of mostly agricultural lands. The most direct regulation of land use and development in the project area is provided by city and county governments. Other levels of government, such as regional, state, and federal, also participate in various ways in land use regulation and planning for the project area. This section will discuss only portions of the project area that involve agricultural resources.

SACRAMENTO COUNTY

Sacramento County is centrally located in the 400-mile long Central Valley, which is California's prime agricultural region. The leading agricultural crops include milk, wine grapes, Bartlett pears, field corn, and turkeys. The County is bordered by Contra Costa and San Joaquin Counties on the south, Amador and El Dorado Counties on the east, Placer and Sutter Counties on the north, and Yolo and Solano Counties on the west. Sacramento County extends from the low delta lands between the Sacramento and San Joaquin rivers north to about ten miles beyond the state capitol and east to the foothills of the Sierra Nevada. The southernmost portion of Sacramento County has direct access to the San Francisco Bay.

The Sacramento County portion of the project area in its entirety includes areas that are designated as Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. A large majority of Sacramento County, however, is fully developed and urbanized.

MARIN COUNTY

Although Marin County is commonly characterized as a suburban residential and recreational area, ranching and dairying are major features of the rural areas of West Marin. Approximately 167,000 acres in Marin are farms or ranches, which amounts to 50 percent of the land. Of the 276 agricultural operations in Marin, 72 are considered large and 204 are considered small or mini-farms. The average size of a farm in Marin is 588 acres, and the majority are third- and fourth-generation family owned operations.

Livestock production is the second largest agriculture industry in the county, with 159 beef cattle, cow/calf, and sheep grazing operations producing livestock, replacement heifers for dairies and breeding stock. While milk and livestock products dominate Marin's agricultural activities, a growing number of small truck farm operations (26) produce organic vegetables on 396 acres for Bay Area restaurants and farmer's markets.

In Marin County, the project area encompasses predominantly urbanized areas of the County. It also includes areas designated as Grazing Land, Farmland of Local Importance, and a small portion as Prime Farmland.

CONTRA COSTA COUNTY

The County of Contra Costa is the ninth most populous county in California, with its population reaching approximately 930,000 as of January 1, 2000. The County has one of the fastest growing

work forces among Bay Area counties, with growth in its employment base being driven primarily by the need to provide services to an increasing local population. In addition to a growing population and employment, agriculture has an important role in the economy of the County. The top five crops, by value in Contra Costa County are bedding plants, apples, milk, tomatoes, and sweet corn.

The project, although predominantly urbanized in Contra Costa County, includes areas designated as Grazing Land, Farmland of Local Importance, and a small portion as Prime Farmland.

ALAMEDA COUNTY

Geographically, Alameda County is located on the east side of San Francisco Bay and extends from Berkeley and Albany in the north to Fremont in the south. Most of the County's population is concentrated in the narrow area between the East Bay Hills and the Bay. East of the East Bay Hills is the greater Livermore Valley area which has been largely residential and suburban in character, but is rapidly urbanizing. Alameda County encompasses a land area of 737.5 square miles, is bounded on the north by Contra Costa County, on the South by Santa Clara County, on the South East corner by Stanislaus County, on the east by San Joaquin County and on the west by the San Francisco Bay.

In Alameda County, the project area encompasses predominantly urbanized areas of this County. A small portion of the project boundary including areas designated as Grazing Land and Prime Farmland.

SAN MATEO COUNTY

San Mateo County is located south of San Francisco, west of San Jose, and north of San Jose. The County boundaries are comprised of almost all developed areas with surrounding Grazing Land and parcels of Prime Farmland. The majority of Sempra Communications’ project boundary includes areas designated as developed. There are scattered parcels of Prime Farmland, Farmland of Local Importance, and Grazing Land.

SANTA CLARA COUNTY

The County of Santa Clara, also referred to as Silicon Valley, is the largest county in the San Francisco Bay Area, with 1,312 square miles populated by approximately 1.7 million residents in fifteen cities, including San Jose and unincorporated areas. While a significant portion of the County's land area is unincorporated ranch and forestland, 92% of the population lives in cities.

In Santa Clara County, the project area includes areas designated as Grazing Land, Prime Farmland, and Farmland of Local Importance. Areas in the northern and western portion of the project boundary are concentrated with Grazed Lands. The majority of Prime Farmland is found in the northern portion of the project area boundary.

FRESNO COUNTY

The city and county of Fresno is located in the central San Joaquin Valley of California. To the west it is predominantly flat, with thousands of acres devoted to agriculture. To the east, the snow-capped Sierra Nevada Mountains rise out of the low foothills. Agriculture is a major industry in Fresno County and is a driving force in the County's economy. The top ten crops grown in the County are: grapes, poultry, cotton, tomatoes, milk, cattle and calves, almonds, head lettuce, plums and peaches.

In Fresno County, the project area focuses on the developed areas of Fresno County. Less than ¼ of the project area includes Prime Farmland and along the fringes of the boundary. Surrounding the project area, high concentrations of Prime Farmland, Grazing Land, and Unique Farmland exist.

LOS ANGELES COUNTY

Los Angeles County remains one of the nation's largest counties with 4,081 square miles, an area some 800 square miles larger than the combined area of the states of Delaware and Rhode Island. The County includes the islands of San Clemente and Santa Catalina. It is bordered on the east by Orange and San Bernardino Counties, on the north by Kern County, on the west by Ventura County, and on the south by the Pacific Ocean. Its coastline is 81 miles long. More than 65% of the County is unincorporated and there are 88 cities within the County.

In Los Angeles County, the project area encompasses primarily urbanized areas and Grazing Land, as well as, scattered Prime Farmland and Farmland of Local Importance in the northwestern portion.

RIVERSIDE COUNTY

Riverside County is the fourth largest county in the state, stretching nearly 200 miles across and comprising over 7,200 square miles of fertile river valleys, low deserts, mountains, foothills and rolling plains. Riverside County shares borders with densely populated Los Angeles, Orange, San Diego, and San Bernardino Counties. Livestock and poultry are the top agriculture products in the County.

In Riverside County, the project area encompasses areas designated as Prime Farmland, Farmland of Local Importance, and Farmland of Statewide Importance, plus developed areas as well.

ORANGE COUNTY

Orange County is supported mainly by an agricultural community and has developed into a largely developed area due to urban growth. Major crops growing in the County include oranges, apricots, and walnuts. Also considered important crops are peaches, apples, sugar beets, beans, alfalfa, olives, potatoes, and peppers.

In Orange County, the project area encompasses land designated as Prime Farmland and Grazed Land. The majority of the area is developed.

SAN DIEGO COUNTY

At the southern extreme of southern California is San Diego County. The City of San Diego boasts 4,200 square miles of country, which encompasses the metropolitan city itself. Agriculture makes up a significant business sector in San Diego County with an agricultural economy that ranks as the seventh largest among all California counties.

In San Diego County, the project area encompasses areas designated as: Grazing Land, Farmland of Local Importance, and Prime Farmland. The majority of the area is developed area with the agricultural areas scattered throughout on the fringes of the County.

SAN BERNARDINO COUNTY

San Bernardino County is centrally located Southern California and has developed into a highly urbanized community. The top ten agricultural products for San Bernardino County are milk, cattle and calves, eggs, nursery products, alfalfa, oranges, oriental vegetables, grapes, chickens, meat, and strawberries. Of those products, the top five are milk, cattle and calves, eggs, nursery products, and oranges.

In San Bernardino County, the project area encompasses land designated as Prime Farmland, Farmland of Local Importance, and Farmland of Statewide Importance. These areas are located primarily on the out skirts of the boundary, with the majority designated as developed.

IMPERIAL COUNTY

Imperial County is located near the Mexican and Arizona borders in Southern California. Leading crops in the area in 1999 are vegetables, livestock, fruit and nuts, seed and nursery, and apiary products. Alfalfa is the number one agronomic crop and the majority of the alfalfa is baled for shipment to California dairies. This is the largest alfalfa-growing region in the world.

The project area for this County, land designated as Prime Farmland is the main component. Scattered within this area is also Farmland of Local Importance and urbanized areas.

4.2.2 REGULATORY SETTING

CALIFORNIA LAND CONSERVATION ACT

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural and open space lands use.

The Land Conservation Act recognizes the importance of agricultural land as an economic resource which is vital to the general welfare of society. The enacting legislation declares that the preservation of a maximum amount of the limited supply of agricultural land is necessary to the conservation of the State's economic resources, and is necessary not only to the maintenance of the agricultural economy of the State, but also for the assurance of adequate, healthful and nutritious food for future residents of California and the nation.

WILLIAMSON ACT

The Williamson Act is a means to restrict the uses of agricultural and open space lands to farming and ranching uses during the length of the contract period. The Williamson Act Program was also envisioned as a way for local governments to integrate the protection of open space and agricultural resources into their overall strategies for planning urban growth patterns.

FARMLAND MAPPING AND MONITORING PROGRAM

The California Department of Conservation, under the Division of Land Resource Protection, has set up the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the State's farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of ten acres. The program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates its "important Farmland Series Maps" every two years. The FMMP is an informational service only and does not constitute state regulation of local land use decisions. Four categories of farmland, Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, are considered valuable and any conversion of land within these categories is typically considered to be an adverse impact. See **Table 4.2-1** for the designation criteria for these categories.

4.2.3 IMPACTS AND MITIGATION MEASURES

APPLICABLE LAND USE DESIGNATIONS, GOALS, AND POLICIES

The project will take place in counties and cities that have adopted and amended goals and policies that pertain to land uses. One of those land use designations is agricultural land. Subsequent actions shall identify the goals and policies of the county and city in which the project actions will take place.

Listed below are a few goals and policies commonly found under sections pertaining to farmland and agricultural resources protection that may be applicable to the proposed project and its subsequent activities:

- Goals and policies are developed to protect important farmlands from conservation and encroachment and conserve agricultural resources.

- Common policies state that the County shall protect prime farmlands with intensive agricultural investments from urban encroachment and mitigate the loss of prime farmlands or lands with intensive agricultural investments through CEQA requirements to provide in-kind protection of nearby farmland.

- In addition, each county and city will have specific goals and policies found in their general plans and zoning ordinances which includes development standards, addresses building locations, and identify allowed land uses.

SIGNIFICANCE CRITERIA

The following significance criterion assesses the magnitude of the expected impacts to present agricultural land use designations. A project would normally have a significant effect on the environment if it were to:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;

- impair the agricultural productivity of productive agricultural land;

- 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 on conversion of Farmland to non-agricultural uses.

Project Construction would result in a significant impact if it would:

- result in substantial nuisance effects on sensitive land uses that would disrupt use over an extended period of time.

Project Operation would result in a significant impact if it would:

- impair agricultural productivity or use of neighboring areas.

Impact AGR-1: Inconsistency with applicable land use designations and policies. (Potentially Significant)

Installation of fiber optic cable facilities may result in short-term impacts to agricultural resources or lands. Subsequent activities would likely take place within utility rights-of-way and existing dirt access roads that are maintained by the local area farmers. These activities may extend across existing agricultural areas/fields. There is potential for construction operations to require the removal of existing crop resources such as orchard trees, vines, etc. This potential loss of existing resources would be considered a potentially significant impact.

Mitigation Measure AGR-1a: The proposed project consistency shall adhere to each county and city ordinance and policy, and be consistent with project area specific goals, policies, and zoning ordinances.

Prior to implementation of subsequent activities, confirm local and county goals, policies, zoning ordinances, and land designations with respect to agricultural land uses for the project areas as specific routes are designated.

Mitigation Measure AGR-1b: Sempra Communications' shall consult with all potentially affected landowners associated with installation of fiber optic cable facilities in portions of the project area that crosses farmland as part of the right of way use or land acquisition process.

As part of the right of way use or land acquisition process, Sempra Communications' and the land or right of way owners shall negotiate an agreed-upon compensation for the loss of any existing agricultural resources (i.e. orchard trees and/or vines) currently in production.

Significance after Mitigation: Less than Significant

Impact AGR.2: Conduit and associated facility installation could result in temporary disruption of agricultural lands. (Potentially Significant)

Although fiber optic cable installation is proposed primarily in utility rights-of-way, access roads, and other such designated corridors, potential to impact daily agricultural production activities to a significant level does exist.

The project area designated as Agricultural Lands would be disrupted by subsequent activities on a short-term basis only during construction. During construction, access roads will not block workers and farmers from obtaining access to and from the property. In the long-term, areas will be protected and maintained as areas of agricultural lands.

Mitigation Measure AGR-2a: Notify landowners of impeding work and restore work site to pre-project conditions.

To ensure that potential short-term impacts would be reduced to a less-than-significant level, Sempra Communications would notify landowners of impeding work and restore work sites to pre-project conditions. In addition, the Sempra Communications' contractors would restore disturbed areas to their pre-project condition, to the extent possible with subsequent project actions, so that short-term construction disturbance does not result in long-term impacts.

Sempra Communications' contractors may not conduct construction activities that impede property owners or agricultural operations workers access to the property, thus inhibiting daily agricultural operations.

Significance after Mitigation: Less than Significant

REFERENCES – Agricultural Resources

"Alameda County," www.co.alameda.ca.us (website accessed May 2002).

"Contra Costa County," www.contra-costa.ca.us (website accessed May 2002).

"El Dorado County," www.co.el-dorado.ca.us (website accessed May 2002).

"Fresno County," www.fresno.co.gov (website accessed May 2002).

"Imperial County," www.imperialcounty.com (website accessed May 2002).

"Marin County," www.marin.org (website accessed May 2002).

"Orange County," www.oc.ca.gov (website accessed May 2002).

"Placer County," www.placer.ca.gov (website accessed May 2002).

"Riverside County," www.co.riverside.ca.us (website accessed May 2002).

"Sacramento County," www.saccounty.net (website accessed May 2002).

"San Bernardino," www.sanbernardino.ca.us (website accessed May 2002).

"San Diego County," www.san-diego.ca.us (website accessed May 2002).

"San Mateo County," www.co.sanmateo.ca.us (website accessed May 2002).

"Santa Clara County," www.claraweb.co.santa_clara.ca.us (website accessed May 2002).

"Ventura County," www.ventura.org (website accessed May 2002).

"Victor Valley College Library Reference Connections," www.victor.co.ca.us/library/reference.htm (website accessed May 2002).

4.3 AIR QUALITY

4.3.1 SETTING

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality. This setting section provides an overview of the regulatory context of air quality management in California followed by project-area-specific information related to climate and topography; plans, policies, and regulations; and existing air quality conditions.

REGULATORY CONTEXT

Criteria Air Pollutants

Regulation of air pollution is achieved through both national and state ambient air quality Standards and emissions limits for individual sources of air pollutants. As required by the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (EPA) has identified criteria pollutants and established National Ambient Air Quality Standards (national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO_2), particulate matter (PM), and lead. These pollutants are called “criteria” air pollutants because they are the most common pollutants found in the atmosphere and standards have been established for each of them to meet specific public health and welfare criteria. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards or State standards). Because of the unique meteorological conditions in California, there is considerable diversity between federal and state air quality standards currently in effect in California. **Table 4.3-1** presents both sets of ambient air quality standards (i.e., national and state) and provides a brief discussion of the related health effects and principal sources for each pollutant.

Area Designations

Both the California and federal governments use monitoring data to designate areas according to their attainment status for most of the pollutants with ambient air quality standards. The purpose of the designations is to identify those areas with air quality problems and thereby initiate planning efforts to make the air more healthful. There are three basic designation categories: nonattainment, attainment, and unclassified. In addition, the California (State) designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are making progress and nearing attainment.

TABLE 4.3-1
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm /a/ ---	0.12 ppm 0.08 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.25 ppm ---	--- 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual Avg.	0.25 ppm --- 0.04 ppm ---	--- 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Suspended Particulate Matter (PM-10)	24 hours Annual Avg.	50 $\mu g/m^3$ /b/ 30 $\mu g/m^3$ /c/	150 $\mu g/m^3$ 50 $\mu g/m^3$	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
Fine Particulate Matter (PM-2.5)	24 hours Annual Avg.	25 $\mu g/m^3$ /d/ 12 $\mu g/m^3$ /d/	65 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
Sulfates	24 hours	25 $\mu g/m^3$	---	Decrease in ventilatory function; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Similar to Sulfur Dioxide sulfates can result from fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Lead	Monthly Quarterly	1.5 $\mu g/m^3$ ---	--- 1.5 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

NOTES: /a/ ppm = parts per million.
/b/ $\mu g/m^3$ = micrograms per cubic meter.
/c/ Geometric mean.
/d/ As of April 2002, the California Air Resource Board is proposing state PM-2.5 standards. The table shows these proposed standards for information purposes only as these are not yet approved or promulgated.

SOURCES: South Coast Air Quality Management District, *1997 Air Quality Management Plan*, November 1996; http://www.aqmd.gov/aqmp/97aqmp/

A nonattainment designation indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem. The federal nonattainment categories range from "marginal" to "extreme" while the State categories are "moderate, serious, severe, and extreme." In contrast to nonattainment, an attainment designation indicates that the air quality does not violate the established standard. In most cases, areas designated as attainment must develop and implement maintenance plans designed to assure continued compliance with the standard. Finally, an unclassified designation indicates that there is insufficient data for determining attainment or nonattainment.

Under amendments to the FCAA, the EPA has classified air basins or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. In 1988, the State Legislature passed the California Clean Air Act (CCAA), which is patterned after the FCAA to the extent that areas are required to be designated as "attainment" or "nonattainment" for the state standards. Thus, areas in California have two sets of attainment / nonattainment designations: one set with respect to the national standards and one set with respect to the state standards.

Air Quality Plans

The FCAA also requires nonattainment areas to prepare air quality plans that include strategies for achieving attainment. Plans are also required under federal law for areas designated as "maintenance" for national standards. State level air quality agencies such as the California Air Resources Board (CARB) compile the State Implementation Plans (SIPs) from air quality plans of all nonattainment areas within the state to demonstrate how states will attain and maintain national air quality standards. Therefore, air quality plans developed by the regional and county air districts will form parts of the SIP. The CCAA also requires plans for nonattainment areas with respect to the state standards (with the exception of areas designated as nonattainment for the state PM-10 standard). Thus, just as areas in California have two sets of designations, many also have two sets of air quality plans: one to meet federal requirements relative to the national standards and one to meet state requirements relative to the state standards.

Toxic Air Contaminants

Toxic air contaminants (TACs) are less pervasive in the urban atmosphere than the criteria air pollutants, but are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

Two principal laws provide the foundation for state regulation of TACs from stationary sources. In 1983, the State Legislature adopted Assembly Bill 1807, which established a process for identifying TACs and providing the authority for developing retrofit air toxics control measures

on a statewide basis. The current list of TACs includes approximately 200 compounds, including all of the toxics identified under federal law plus additional compounds, such as particulate emissions from diesel-fueled engines, which was added in 1998. Air toxics from stationary sources in California are also regulated under Assembly Bill 2588 (AB 2588), the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the regional air quality management district or county air pollution control district. High priority facilities are required to perform a health risk assessment, and if specific thresholds are violated, they are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk level, emitting facilities can be required to implement varying levels of risk reduction measures.

The regulatory approach differs between stationary sources and mobile sources of TACs. The approach to regulation of TACs from mobile sources has been through establishment (by the EPA and CARB) of emissions standards for motor vehicles (imposed on vehicle manufacturers) and through specifications for gasoline and diesel fuel sold in California (imposed on fuel refineries and retailers), rather than through air quality permits or regulations on how motor vehicles are used by the general public.

REGULATORY AGENCIES

The EPA is responsible for implementing the myriad of programs established under the FCAA, such as establishing and reviewing the national ambient air quality standards and judging the adequacy of SIPs, but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. CARB, California's state air quality management agency, is responsible for establishing and reviewing the state ambient air quality standards, compiling the SIP and securing approval of that plan from the EPA, and identifying TACs. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of local air districts, which are organized at the county or regional level. The county or regional air districts are primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within their geographic area and for preparing the air quality plans that are required under the FCAA and CCAA. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

SOURCES OF EMISSIONS IN CALIFORNIA

California is a diverse State with many sources of air pollution. To estimate the sources and quantities of pollution, CARB, in cooperation with local air pollution control districts and industry, maintains an emission inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources. Stationary source emissions are based on estimates made by facility operators and local air pollution control districts. Emissions from specific facilities can be identified by

name and location. Area-wide emissions are estimated by CARB and district staffs. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. Mobile source emissions are estimated by CARB staff with assistance from districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. Natural sources are also estimated by CARB staff and the air districts. These sources include geogenic hydro-carbons, natural wind-blown dust, and wildfires. For the inventoried emission sources, CARB compiles emission estimates for both the criteria pollutants and TACs.

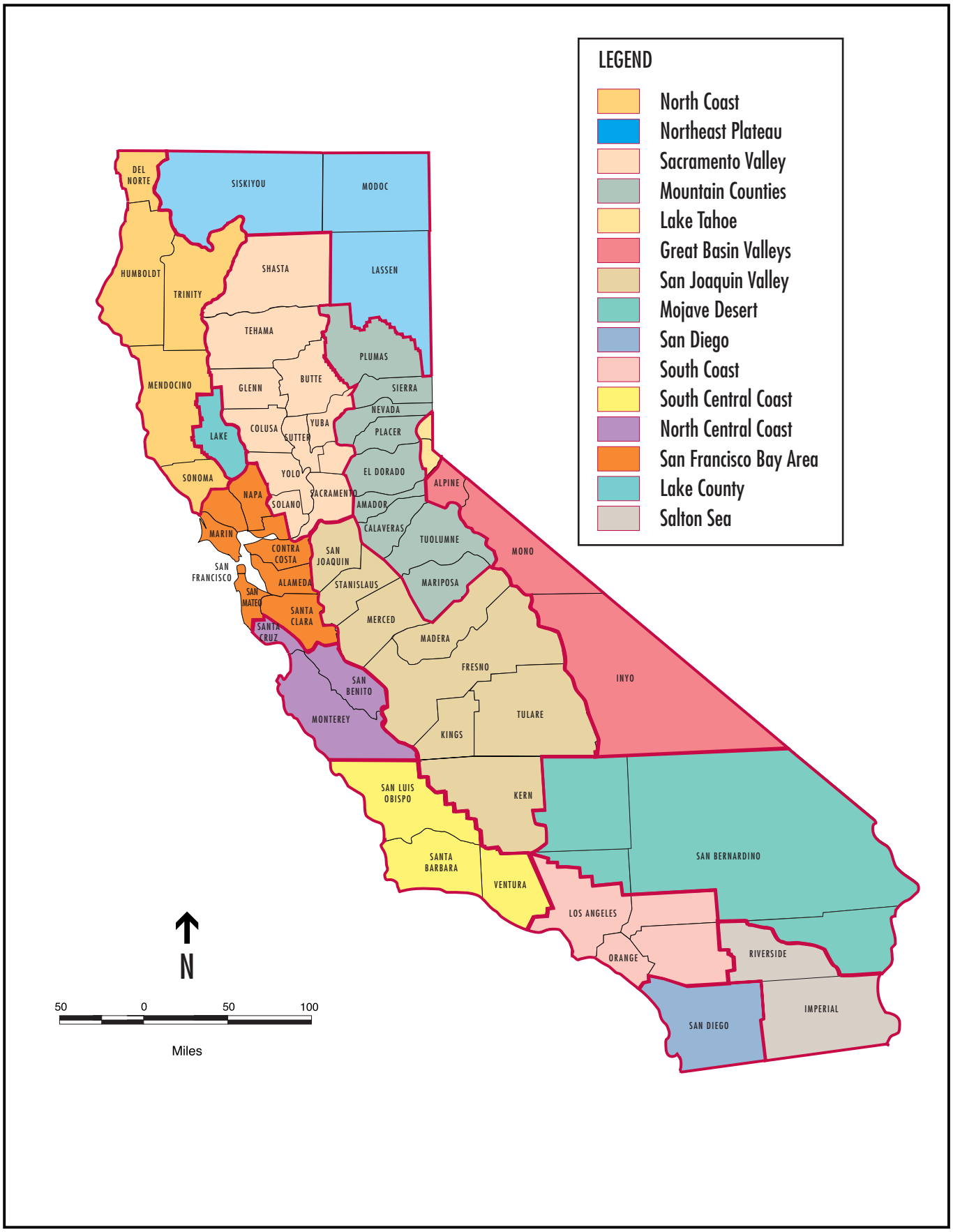
AIR BASINS OF CALIFORNIA

California contains a wide variety of climates, physical features, and emission sources. This variety makes the task of improving air quality complex, because what works in one area may not be effective in another area. To better manage the air resources of the State and common air quality problems on a regional basis, California is divided into 15 air basins. CARB established the initial air basin boundaries in 1968. An air basin generally has similar meteorological and geographic conditions throughout. Areas within each air basin are considered to share the same air masses and are therefore expected to have similar ambient air quality. To the extent possible, the air basin boundaries follow along political boundary lines and are defined to include both the source area and the receptor area. However, air often moves freely from basin to basin. As a result, pollutants such as ozone and PM-10 can be transported across air basin boundaries, and inter-basin transport is a reality that must be dealt with in air quality programs. The air basin boundaries have been changed several times over the years, to provide for better air quality management.

Figure 4.3-1 below shows the air basin boundaries and the location of the counties that lie within each air basin. **Figure 4.3-2** shows the boundaries of the regional and county air quality management districts and air pollution control districts that manage the air resources within different air basins. Note that the jurisdictional boundaries of these air districts do not always correspond with the boundaries of the air basins.

LOCATION OF THE PROPOSED PROJECT

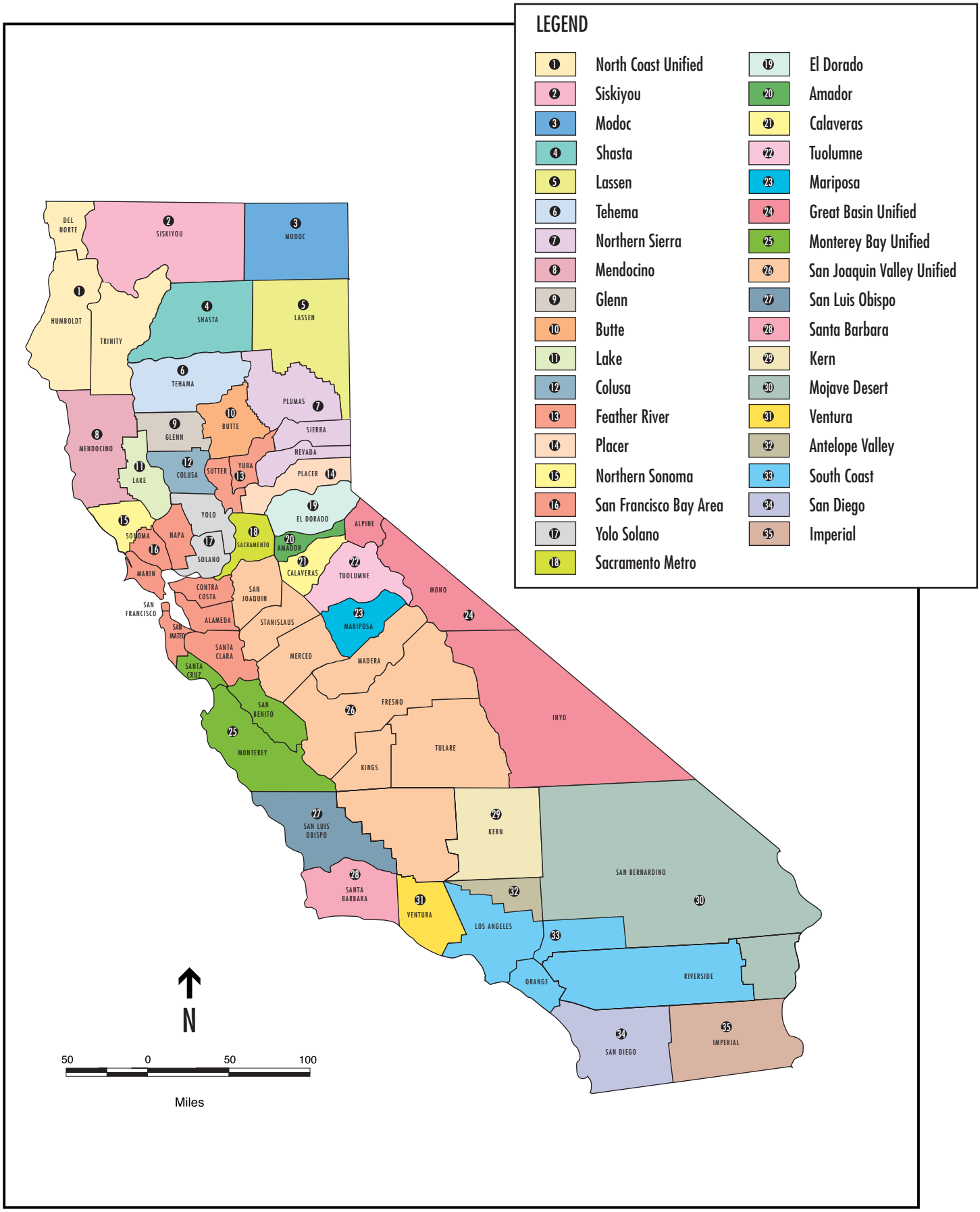
The location of the proposed project areas is located within seven air basins. In addition to the state and federal air quality laws, the proposed project would be subject to the rules and regulations of seven regional air quality management districts and would be required to be consistent with their regional air quality plans. Air basins and local air districts that are affected by the proposed project are listed in **Table 4.3-2**.



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

SOURCE: MIG, Inc. and Environmental Science Associates, 2000

Figure 4.3-1
Counties and Air Basins of California



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

SOURCE: Environmental Science Associates, 2002

Figure 4.3-2
Local Air Quality Management Agencies of California

TABLE 4.3-2
CALIFORNIA AIR BASINS AND LOCAL AIR DISTRICTS AFFECTED BY THE PROPOSED PROJECT

Air Basin	Local Air Districts
Sacramento Valley Air Basin	Sacramento Metropolitan Air Quality Management District
San Francisco Bay Area Air Basin	Bay Area Air Quality Management District
North Central Coast Air Basin	Monterrey Bay Unified Air Pollution Control District
San Joaquin Valley Air Basin	San Joaquin Valley Unified Air Pollution Control District
South Coast Air Basin	South Coast Air Quality Management District
San Diego Air Basin	San Diego County Air Pollution Control District
Salton Sea Air Basin	Imperial County Air Pollution Control District.

SOURCE: Environmental Science Associates, 2002

The following paragraphs provide a brief discussion of the climate and topography, attainment status, regulatory agencies, plans, policies, rules and regulations and existing air quality conditions applicable to the project areas located in the seven air basins affected by the project. The attainment status of the project areas in the seven air basins, for the pollutants of concern in California is also summarized in **Table 4.3-3**.

Sacramento Valley Air Basin

The Sacramento Valley Air Basin (SVAB) includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western portion of Placer County, and the eastern portion of Solano County. The proposed project would be located in areas only within Sacramento County (see Figure 3-9 in Chapter 3, Project Description). Sacramento County forms part of the area known as the Broader Sacramento Area.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the agency with air pollution control authority over all of Sacramento County.

Climate and Topography

Because of its inland location, the climate of Sacramento is generally more extreme than coastal areas. Sacramento is characterized by wet and cool winters from November through March and warm to hot, dry weather from May through September. The topographic features giving shape to Sacramento County are the Coast Ranges to the west, the Sierra Nevada to the east, and the Cascade Range to the north. These mountain ranges channel winds through Sacramento but also inhibit dispersion of pollutant emissions, particularly in combination with persistent regional subsidence inversions (i.e., warmer air overlying cooler air), leading to conditions under which pollutant concentrations can accumulate.

TABLE 4.3-3
ATTAINMENT STATUS OF THE PROPOSED PROJECT AREA FOR THE STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Attainment Status[a]													
	State Standards[b]							National Standards[c]						
Pollutant	Bay Area	SCAB	SVAB	SJVAB	SDAB	NCCAB	SSAB	Bay Area	SCAB	SVAB	SJVAB	SDAB	NCCAB	SSAB
Ozone	N	N	N	N	N	N	N	N	N	N	N	N	A	N
Carbon Monoxide	A	N	A	A	A	U	U	A	N	A	A	A	A	A
Hydrogen Sulfide	U	U	U	U	U	U	U	-	-	-	-	-	-	-
Nitrogen Dioxide	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sulfates	A	A	A	A	A	A	A	-	-	-	-	-	-	-
Sulfur Dioxide	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Suspended Particulate Matter (PM-10)	N	N	N	N	N	N	N	A	N	A	N	A	A	N
Lead	A	A	A	A	A	A	A	A	A	A	A	A	A	A

a N = nonattainment, A = attainment, U = unclassified, - = no standard.
b California Standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and PM-10 are values that are not to be exceeded.
c National standards other than for ozone and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year.

Bay Area = San Francisco Bay Area Air Basin
SCAB = South Coast Air Basin
SVAB = Sacramento Valley Air Basin
SJVAB = San Joaquin Valley Air Basin
SDAB = San Diego Air Basin
NCCAB = North Central Coast Air Basin
SSAB = Salton Sea Air Basin

NOTE: In 1997, EPA established an 8-hour standard for ozone, and annual and 24-hour standards for very fine particulate matter (PM-2.5). As of May 2002, there is insufficient monitoring data to determine the attainment status for PM-2.5.

SOURCE: California Air Resources Board, 2001 State and National Area Designation Maps of California; http://www.arb.ca.gov/desig/adm/adm.htm.

Attainment Status

Sacramento County is currently designated as nonattainment for state ozone and PM-10 standards (CARB, 2000). In addition, Sacramento County is located within a subregion of the Sacramento Valley that is designated nonattainment for the national one-hour ozone standard; this subregion includes all or portions of Sacramento, Yolo, Solano, El Dorado, Placer, and Sutter counties. This subregion is further classified as a "severe" nonattainment area with respect to the national one-hour ozone standard.

Sacramento Valley is attainment or "unclassified" with respect to the other pollutant standards, except for the national PM-10 standard. Sacramento County is officially designated as nonattainment for the national PM-10 standard, but, based on questions concerning the validity of the data supporting the nonattainment designation; SMAQMD has requested U.S. EPA to redesignate the county as attainment for the national PM-10 standard (SMAQMD, 2001). This request is currently under review by the EPA. With respect to carbon monoxide, the urbanized portions of Sacramento, Placer, and Yolo counties are designated as a "maintenance" area for the national standard, which indicates that the area had once been designated nonattainment for that pollutant, but is now designated as attainment in light of improved conditions.

Plans and Policies

The 1994 ozone SIP, the *Sacramento Area Regional Ozone Attainment Plan*, is the current federal ozone plan for Sacramento County (SMAQMD, 1994). The plan was developed on a regional basis with the participation of the five air districts in the region, CARB, and the Sacramento Area Council of Governments. The EPA defines the Sacramento ozone nonattainment area to include Sacramento County, Yolo County, Solano County (a portion), Placer and El Dorado Counties (except mountain portions), and part of Sutter County adjacent to Sacramento County. The 1994 ozone SIP relies heavily on local air-district-administered, stationary-source control programs and on statewide mobile-source control programs. With respect to the national carbon monoxide standard, this portion of the project area is subject to a "maintenance" plan, which demonstrates how the area will continue to maintain concentrations below the standard now that the county's designation is "attainment." In contrast to the ozone plan, the *Carbon Monoxide Maintenance Plan* relies almost exclusively on statewide mobile-source control programs.

In compliance with the requirements of the CCAA to assess the progress towards reaching attainment, the 1991 Air Quality Attainment Plan (State Plan) was adopted by the SMAQMD. The CCAA requirement for the first triennial progress report and Plan revision of the State Plan was fulfilled with the preparation and adoption of the 1994 Sacramento Area Regional Ozone Attainment Plan (Federal Plan). This document was prepared to fulfill the requirements of the FCAA and construed by the ARB to also fulfill the 1994 requirements of the CCAA.

Rules and Regulations

The SMAQMD is the agency primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within Sacramento County. SMAQMD is also responsible for

preparing the air quality plans (or portions thereof) for its jurisdiction. SMAQMD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. SMAQMD exercises permit authority through its *Rules and Regulations*. Emission sources associated with the project such as mobile equipment and trucks related to construction are generally not subject to the permitting requirements. Under SMAQMD's *Rules and Regulations*, new stationary sources, including internal combustion engines with a manufacturer's maximum continuous rating of greater than 50 brake horsepower must secure an authority to construct (Rule 301) and a permit to operate (Rule 302). This rule would apply to any emergency generators that would be installed at the regenerator huts/POP sites within Sacramento County. In addition, within Sacramento County, SMAQMD Rule 403 (Fugitive Dust) applies to various dust-generating activities, including construction operations.

Existing Air Quality Conditions

The SMAQMD operates a monitoring network to monitor ambient pollutant concentrations within its jurisdiction. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-4** is a summary of regional monitoring data collected over the past four years for those pollutants for which the SVAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-4**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 50 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 7 and 41 days per year, respectively, over the same period. High ozone concentrations in Sacramento Valley reflect basin-wide emissions sources of ozone precursors (i.e., reactive organic gases and nitrogen oxides), as well as pollutant transport from the San Francisco Bay Area and San Joaquin Valley. Emissions generated within Sacramento Valley, in turn, can significantly affect ozone concentrations in the adjacent Mountain Counties Air Basin.

These data show that for the Air Basin there are no exceedances for carbon monoxide, sulfur dioxide and nitrogen dioxide over the past four years.

With respect to PM-10, the regional monitoring network records exceedances of the state 24-hour standard at one or more of the monitoring stations on a regular basis. Based on available data, PM-10 exceedances are recorded at one or more of the stations in the basin.

San Francisco Bay Area Air Basin

The San Francisco Bay Area Air Basin (Bay Area) encompasses a nine county region that includes all of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Marin and Napa counties and the southern portion of Sonoma and southwestern half of Solano County. The project encompasses six of the nine Bay Area counties, namely Marin, San Francisco, Alameda, Contra Costa, Santa Clara and San Mateo counties.

TABLE 4.3-4
SUMMARY OF MONITORING DATA FOR THE SACRAMENTO VALLEY AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.160**	**0.160**	**0.138**	**0.142**
Days over State Standard			62	59	42	36
Days over National Standard			14	7	5	2
Highest 8-hour average, ppm/	NA	0.08	**0.137**	**0.129**	**0.108**	**0.108**
Days over National Standard			60	43	35	25
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	7.1	6.6	6.3	5.3
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.018	0/014	0.008	0.017
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	0.101	0.110	0.085	0.090
Highest Annual average, ppm	---	0.053	0.021	0.021	0.019	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /b/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**104**	**141**	**58**	**66**
Days over State Standard			18	30	12	12
Days over National Standard			0	6	0	0
Highest annual average, $\mu g/m^3$	30	50	21	27	21	18

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Del Paso Manor station in Sacramento as regional values were not available.
/c/ 2001 data taken from the 3801 Airport station in Sacramento as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

The Bay Area Air Quality Management District (BAAQMD) is the local air quality management agency primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within the Bay Area. The jurisdictional boundary of BAAQMD coincides with the boundary of the Bay Area Air Basin.

Climate and Topography

The Bay Area is characterized by a complex terrain consisting of coastal mountain ranges, inland valleys and bays. The climate of the Bay Area is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the west coast of North America. High-pressure systems are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. In winter, the Pacific high pressure system shifts southward, allowing storms to pass through the region. During summer and fall, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

Attainment Status

The Bay Area is currently designated “nonattainment” for state and national ozone standards and for the state PM-10 standard (CARB, 2000). The Bay Area is further classified as a “serious” nonattainment area with respect to the State ozone standards and a “moderate” nonattainment area with respect to the federal ozone standards. Urbanized parts of the Bay Area are also designated as “maintenance” areas for the national carbon monoxide standard. The “maintenance” designation denotes that the area, now “attainment,” had once been designated as “nonattainment.” The Bay Area is “attainment” or “unclassified” with respect to the other ambient air quality standards.

Plans and Policies

Currently, there are three plans for the Bay Area:

- Ozone Attainment Plan for the 1-Hour National Ozone Standard (Association of Bay Area Governments (ABAG), 1999) developed to meet federal ozone air quality planning requirements;

- Bay Area 2000 Clean Air Plan (BAAQMD, 2000a), the most recent triennial update of the *1991 Clean Air Plan* developed to meet planning requirements related to the state ozone standard; and

- Carbon Monoxide Maintenance Plan (ABAG, 1994) developed to ensure continued attainment of the national carbon monoxide standard.

Rules and Regulations

As previously stated, BAAQMD is the regional agency with permit authority over most types of stationary emission sources in the Bay Area. BAAQMD exercises permit authority through its *Rules and Regulations*. Both federal and state ozone plans rely heavily upon stationary source control measures set forth in BAAQMD's *Rules and Regulations*. The overall stationary source control program that is embodied by the BAAQMD *Rules and Regulations* has been developed such that new stationary sources can be allowed to operate in the Bay Area without obstructing the goals of the regional air quality plans. To accomplish this objective, many new stationary sources are required to install Best Available Control Technology (BACT) and to provide offsets at a greater than 1:1 ratio in order to secure a permit to operate from the BAAQMD. Other stationary sources have been deemed too minor to require a permit, BACT or offsets. For example, BAAQMD Regulation 1, Rule 1-110.2, excludes any internal combustion engine used solely as an emergency standby source of power from all BAAQMD regulations, including the requirement to secure a permit to operate.

In contrast to the ozone plans, the *Carbon Monoxide Maintenance Plan* relies heavily on mobile source control measures, and since, once constructed, the project would generate essentially no mobile source emissions, it would have no effect on continued attainment of the national carbon monoxide standard.

Existing Air Quality Conditions

As the project also includes six of the nine Bay Area counties, for purposes of this document, existing air quality conditions have been reported basinwide. BAAQMD operates a regional air quality monitoring network that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-5** is a summary of regional monitoring data collected over the past four years for those pollutants for which the Bay Area is, or has been, designated "nonattainment." As shown in **Table 4.3-5**, the regional monitoring network has recorded violations of the state ozone standard on an average of approximately 18 days per year over the past four years. Coastal monitoring stations, such as those in San Francisco, Oakland, and San Rafael, record the fewest violations while inland valley stations, such as those in Livermore, Concord, and Gilroy, record the most violations. Violations of national one-hour and national eight-hour ozone standards occur less frequently: on approximately 4 and 8 days per year, respectively. **Table 4.3-5** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years. With respect to PM-10, the regional monitoring network records sporadic violations of the state 24-hour standard 5 days in 1998, 36 and 42 days in 1999 and 2000 and 2 days in 2001.

TABLE 4.3-5
SUMMARY OF MONITORING DATA FOR THE SAN FRANCISCO BAY AREA AIR BASIN 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.147**	**0.156**	**0.152**	**0.123**
Days over State Standard			29	20	12	11
Days over National Standard			8	3	3	0
Highest 8-hour average, ppm/	NA	0.08	**0.111**	**0.122**	**0.144**	**0.096**
Days over National Standard			16	9	4	4
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	6.3	6.3	7.0	5.1
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.02	0.04	0.03	0.00
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /b/						
Highest 1-hour average, ppm	0.25	---	0.098	.0128	0.114	0.059
Highest Annual average, ppm	---	0.053	0.025	0.026	0.025	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**92**	**114**	**76**	**109**
Days over State Standard			5	36	42	2
Days over National Standard			0	0	0	0
Highest annual average, $\mu g/m^3$	30	50	23	25	24	25

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Concord station as regional values were not available.
/c/ 2001 data taken from the Livermore station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

North Central Coast Air Basin

The North Central Coast Air Basin (NCCAB) is comprised of Monterrey, Santa Cruz and San Benito Counties. The project area includes only Santa Cruz County. The Monterey Bay Unified Air Pollution Control District (MBUAPCD) is the agency with air pollution control authority over the entire NCCAB. The jurisdictional boundary of MBUAPCD coincides with the boundary of the NCCAB.

Climate and Topography

The basin lies along the central coast of California with the Santa Cruz Mountains dominating the northwest sector of the basin. The semi-permanent high pressure cell in the eastern Pacific is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys while the warmer air aloft acts as a lid to inhibit vertical air movement.

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure, which intensifies the onshore airflow during the afternoon and evening.

In Santa Cruz County, coastal mountains exert strong influence on atmospheric circulation and result in generally good air quality. Small inland valleys such as Scotts Valley with low mountains on two sides have poorer circulation than at Santa Cruz on the coastal plain. Scotts Valley is downwind of major pollutant generating centers, and these pollutants have time to form oxidants while in transit to Scotts Valley. Consequently, air pollutants tend to build up more at Scotts Valley than at Santa Cruz.

Attainment Status

NCCAB is designated as a nonattainment area for the State Ambient Air Quality Standards for ozone and PM-10. Because it has not violated the state ozone standard more than three times at any monitoring location within the district during the calendar year for 2000, the district is designated “nonattainment-transitional” for ozone by operation of law. Santa Cruz County is either attainment or unclassified with respect to other state and national ambient air quality standards.

Plans and Policies

The 1991 Air Quality Management Plan for the Monterey Bay Area (AQMP) was the first plan prepared in response to the CCAA that established specific planning requirements to meet the ozone standard. The Act requires that the AQMP be updated every three years. The 2000 AQMP is the third and most current update to the 1991 AQMP with the first two completed in 1994 and 1997, respectively. The AQMP addresses only attainment of the state ozone standard. Attainment

of the PM-10 standard is addressed in the District's 1998 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region.

Rules and Regulations

MBUAPCD is the regional agency with permit authority over most types of stationary emission sources in the NCCAB. As with other air districts, MBUAPCD exercises permit authority through its *Rules and Regulations*. According to the District's *Rules and Regulations*, new stationary sources are required to install BACT and to provide offsets in order to secure a permit to operate from MBUAPCD. Other stationary sources have been deemed too minor to require a permit, BACT or offsets. For example, Rule 2-201.4.11 exempts stationary sources such as any internal combustion engine used solely as an emergency standby source of power with a horsepower rating of less than 100 hp from permit requirements unless subject to BACT requirements under Rule 2-207. BACT shall not be required for any stationary source generating less than new or modified permit unit with a potential to emit 25 pounds per day or more of volatile organic compounds (VOCs) or NOx. The sources will also not be subject to offset requirements if they emit less than 137 pounds per day of VOCs or NOx. Construction equipment would be exempt from permitting requirements if they have been registered as portable equipment in accordance with the California Statewide Portable Engine Registration Program authorized under Title 13, Article 5, Sections 2450 through 2465, California Code of Regulations.

Existing Air Quality Conditions

Table 4.3-6 is a summary of regional monitoring data collected over the past four years for those pollutants for which NCCAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-6**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 5 days per year over the past five years. There have been no exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 2 days per year, over the same period. **Table 4.3-6** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years.

For PM-10, the regional monitoring network records exceedances of the state 24-hour standard at one or more of the monitoring stations on a regular basis. Based on available data, PM-10 exceedances are recorded at one or more of the stations in the basin. Note that in the PM-10 trend over the last three years is down and no state exceedances were recorded for 2001.

San Joaquin Valley Air Basin

The San Joaquin Valley Air Basin (SJVAB) includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings and Tulare counties, the western portion of Placer County, and the western half of Kern County. The project area includes only Fresno County within this basin.

TABLE 4.3-6
SUMMARY OF MONITORING DATA FOR THE NORTH CENTRAL COAST AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.124**	**0.107**	**0.098**	**0.108**
Days over State Standard			10	3	3	3
Days over National Standard			0	0	0	0
Highest 8-hour average, ppm/	NA	0.08	**0.097**	**0.085**	**0.084**	**0.088**
Days over National Standard			6	1	0	2
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	3.5	3.7	2.4	1.4
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.00	0.01	0.00	0.01
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /b/						
Highest 1-hour average, ppm	0.25	---	0.085	0.054	0.071	0.032
Highest Annual average, ppm	---	0.053	0.010	0.005	0.007	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**76**	**103**	**74**	42
Days over State Standard			24	36	24	0
Days over National Standard			0	0	0	0
Highest annual average, $\mu g/m^3$	30	50	26	28	24	21

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Davenport station as regional values were not available.
/c/ 2001 data taken from the Watsonville station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is the agency with air pollution control authority over the entire San Joaquin Valley Air Basin. The jurisdictional boundary of the SJVUAPCD coincides with the boundary of the San Joaquin Valley Air Basin.

Climate and Topography

SJVAB is a topographically flat area bordered on the east by the Sierra Nevada mountains; on the west by the Coast Ranges; and to the south by the Tehachapi mountains. Airflow in SJVAB is primarily influenced by marine air that enters through the Carquinez Straits where the San Joaquin-Sacramento Delta empties into the San Francisco Bay (SJVUAPCD, 2001a). The region's topographic features restrict air movement through and out of the basin. As a result, SJVAB is highly susceptible to pollutant accumulation over time (SJVUAPCD, 2001a). Frequent transport of pollutants into SJVAB from upwind sources also contributes to poor air quality.

Wind speed and direction play an important role in dispersion and transport of air pollutants. During summer periods, winds usually originate out of the north end of SJVAB and flow in a south-southeasterly direction through the San Joaquin Valley, through the Tehachapi Pass and into the neighboring Southeast Desert Air Basin. During winter months, winds occasionally originate from the south end of the San Joaquin Valley and flow in a north-northwesterly direction. Also, during winter months, SJVAB experiences light, variable winds, less than 10 mph. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high concentrations of certain air pollutants.

The vertical dispersion of air pollutants in SJVAB is limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Air above and below an inversion does not mix because of differences in air density thereby restricting air pollutant dispersal.

Attainment Status

SJVAB is currently designated as "nonattainment" for national and state ozone and state PM-10 standards (CARB, 2000). The urbanized areas of Bakersfield, Fresno, Modesto, and Stockton were recently redesignated as "attainment" for the federal carbon monoxide standard. SJVAB is "attainment" or "unclassified" for the other ambient air quality standards.

Plans and Policies

The most current federal and state air quality plans that apply to SJVAB are:

- *California Clean Air Act Triennial Progress Report and Plan Revision 1997-1999.* This is the third triennial update to the *1991 Air Quality Attainment Plan for the San Joaquin Valley* that established the regulatory groundwork in order to bring the SJVAB into compliance with the CAAQS for ozone and CO. This plan identifies the SJVAB as both a source and receptor of transported ozone and concludes that attainment of the State ozone standard will not occur until upwind areas, such as the Bay Area and SVAB, substantially reduce their emissions of ozone precursors.

- *The Federal Ozone Attainment Demonstration Plan* (adopted November 14, 1994). This plan establishes the regulatory framework needed to bring the SJVAB into compliance with the national standards for ozone. This plan also satisfies the triennial review requirement for State Ambient Air Quality Standards under the CCAA.

- *1997 PM-10 Attainment Demonstration Plan*. This plan establishes the regulatory framework in order to bring the SJVAB into compliance with the national standards for PM-10 by the end of 2006, as prescribed by the EPA (SJVUAPCD, 2001a).

- *1992 Federal Attainment Plan for Carbon Monoxide*. This plan establishes the regulatory framework needed to bring the SJVAB into compliance with the national standards for CO. This plan demonstrates that CO attainment has already been achieved.

Rules and Regulations

SJVUAPCD is the agency primarily responsible for regulating stationary source emissions within SJVAB. SJVUAPCD is responsible for preparing the air quality plans (or portions thereof) for its jurisdiction. SJVUAPCD's primary means of implementing the above air quality plans is by adopting rules and regulations. Stationary sources within the jurisdiction are regulated by SJVUAPCD's permit authority over such sources and through its review and planning activities. For example, SJVUAPCD adopted its Regulation VIII-Fugitive Dust Control, Rule 8010, on October 21, 1993. This regulation consists of a series of emissions reduction rules intended to implement the *PM-10 Attainment Demonstration Plan*. The *PM-10 Attainment Demonstration Plan* emphasizes reducing fugitive dust as a means of achieving attainment of the federal standards for PM-10. The rule specifically addresses the following activities:

- construction, demolition, excavation, extraction;
- handling and storage of bulk materials;
- landfill disposal sites;
- paved and unpaved roads; and
- vehicle and/or equipment parking, shipping receiving, transfer, fueling, and service areas.

Existing Air Quality Conditions

SJVUAPCD operates a monitoring network to monitor ambient pollutant concentrations within its jurisdiction. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-7** is a summary of regional monitoring data collected over the past four years for those pollutants for which SJVAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-7**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 110 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 30 and 77 days per year, respectively, over the same period. **Table 4.3-7** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years.

TABLE 4.3-7
SUMMARY OF MONITORING DATA FOR THE SAN JOAQUIN VALLEY AIR BASIN, 1998-2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.169**	**0.155**	**0.165**	**0.149**
Days over State Standard			90	123	114	110
Days over National Standard			39	28	30	22
Highest 8-hour average, ppm/	NA	0.08	**0.136**	**0.123**	**0.131**	**0.118**
Days over National Standard			84	117	103	102
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	8.0	7.8	6.6	6.0
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	NA	0.01	0.00	0.01
Days over State Standard			NA	0	0	0
Days over National Standard			NA	0	0	0
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	0.112	0.108	0.099	0.075
Highest Annual average, ppm	---	0.053	0.023	0.027	0.024	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**160**	**183**	**145**	**193**
Days over State Standard			114	174	180	15
Days over National Standard			6	9	0	1
Highest annual average, $\mu g/m^3$	30	50	**32**	**50**	**45**	**42**

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Bakersfield station as regional values were not available.
/c/ 2001 data taken from the Fresno station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

With respect to PM-10, the regional monitoring network records exceedances of the state and federal 24-hour and state annual standards at one or more of the monitoring stations on a regular basis.

South Coast Air Basin

The South Coast Air Basin (SCAB) is a 6,600 square mile area bounded by the Pacific Ocean on the west and the San Gabriel, San Bernardino, and San Jacinto Mountains on the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, which can be described as the southwestern three-quarters of Los Angeles County, the southwestern corner of San Bernardino County and western one third of Riverside County. The project area includes urbanized areas of all four counties located within this air basin.

The South Coast Air Quality Management District (SCAQMD) is the regional air pollution control agency with jurisdiction over an area of approximately 12,000 square miles, consisting of the four-county SCAB and the Los Angeles County portion of the Mojave Desert Air Basin and the Riverside County portions of the Salton Sea Air Basin (SSAB).

Climate and Topography

The topography and climate of Southern California combine to create an area of high air pollution potential in SCAB. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cup over the cool marine layer, which prevents pollution from dispersing upward. This inversion allows pollutants to accumulate within the lower layer. Light winds during the summer further limit ventilation.

Because of the low average wind speeds in the summer and a persistent daytime temperature inversion, emissions of hydrocarbons and oxides of nitrogen have an opportunity to combine with sunlight in a complex series of reactions. These reactions produce a photochemical oxidant commonly known as "smog." Because the region experiences more days of sunlight than any other major urban area in the United States, except Phoenix, the smog potential in the region is higher than in most other major metropolitan areas in the country.

The climate of Southern California is controlled largely by the strength and position of the subtropical high-pressure cell over the Pacific Ocean. This high-pressure cell produces a typical Mediterranean climate with warm summers, mild winters, and moderate rainfall. Cyclic land and sea breezes are the primary factors affecting the region's mild climate. The daytime winds are normally sea breezes, predominantly from the west, that flow at relatively low velocities. Temperatures are normally mild with rare exceptions. This pattern is infrequently interrupted by periods of extremely hot weather brought in by Santa Ana winds.

Attainment Status

SCAB is currently designated as a nonattainment area for state and national ambient air quality standards for ozone and PM-10 (Air Resources Board, 1999). The South Coast is also a nonattainment area for the national carbon monoxide standard and a "maintenance" area for the national nitrogen dioxide standard, which denotes that it had once been a nonattainment area for that pollutant standard as well. Further, SCAB is the only region in California and the nation

classified as "extreme" for ozone under the Federal classification. It is also classified as "extreme" under the CCAA.

Plans and Policies

For the South Coast, current federal and state air quality planning requirements have been consolidated into a single plan, the *1997 Air Quality Management Plan* (1997 AQMP), which is the latest in a series of plans that have been developed over the past several decades (SCAQMD, 1996). The following paragraphs briefly discuss the control strategies outlined in the 1997 AQMP for pollutants of concern in SCAB.

Ozone. As mentioned above, the South Coast has been further classified pursuant to the FCAA Amendments of 1990 as an "extreme" nonattainment area with respect to the national ozone standard. "Extreme" ozone nonattainment areas must demonstrate attainment within 20 years of enactment (i.e., by 2010). The ozone strategy included in the 1997 AQMP builds upon a regulatory foundation established over the last several decades to improve air quality conditions in the South Coast. One of the key elements of the ozone strategy is a program referred to as New Source Review (NSR), which is a program that new and modified stationary sources undergo to secure a permit from the regional air district. The NSR program established by regional air quality management district meets the requirements for areas designated as "extreme" ozone nonattainment and requires new sources to install BACT and, in many cases, offsets in order to reduce overall stationary source emissions of ozone precursors. (Ozone precursors include VOCs and NOx) The 1997 AQMP carries forward a number of control measures identified in previous plans related to specific categories of stationary sources, on-road mobile sources, and off-road mobile sources. The 1997 AQMP predicts that the control strategy will attain the national ozone standard by 2010 but does not include an attainment date for the more stringent state ozone standard. In December 1999, the ozone strategy of the 1997 AQMP was amended to include additional control measures and to accelerate the effective dates of other measures. The EPA is proposing to approve this amended ozone strategy (EPA, 2000).

PM-10. Pursuant to FCAA Amendments of 1990, the South Coast has been designated as a "serious" PM-10 nonattainment area for the national PM-10 standard. The 1997 AQMP serves as the PM-10 Attainment Demonstration Plan. This PM-10 plan relies upon control of area sources, known as "fugitive" dust sources, such as construction sites, heavily traveled publicly maintained unpaved roads, and agricultural activities. To regulate such sources in the South Coast, the regional air district has adopted Rule 403 (Fugitive Dust). The purpose of Rule 403 is to implement the fugitive dust control measures in the applicable federal PM-10 Plan. The PM-10 attainment strategy set forth in the 1997 AQMP relies upon implementation of more stringent Best Available Control Measures (BACM) for sources of fugitive dust than has been required in the past. The 1997 AQMP predicts that the national PM-10 standard will be attained by 2006.

Carbon Monoxide. The South Coast is designated as a "serious" nonattainment area for the national CO standard. The 1997 AQMP serves as the CO Attainment Demonstration Plan. The CO attainment strategy depends upon stationary-source NSR requirements, increasingly stringent

mobile-source tailpipe emissions standards, and oxygenated gasoline fuel specifications. Carbon monoxide emissions have been substantially reduced over the past decade, and the 1997 AQMP predicts that the national carbon monoxide standard will be attained throughout the South Coast by 2000.

Nitrogen Dioxide. In July 1998, the South Coast was redesignated by U.S. EPA from "nonattainment" to "unclassified / attainment" for the national nitrogen dioxide standard. As such, the Air Basin became a "maintenance" area for that standard, and the 1997 AQMP serves as the Nitrogen Dioxide Maintenance Plan of the South Coast. Maintenance of the nitrogen dioxide standard will depend upon continued implementation of the NSR program for stationary sources, reductions in mobile-source emissions, as well as new control measures that are included as part of the ozone attainment strategy.

Rules and Regulations

The regional agency responsible for developing the prior mentioned plans is SCAQMD, the agency with permit authority over most types of stationary sources in the South Coast. SCAQMD exercises permit authority through its *Rules and Regulations*, which has evolved to reflect State and federal requirements for "extreme" ozone nonattainment areas. Under SCAQMD's *Rules and Regulations*, new stationary sources must secure a permit to construct (Rule 201) and a permit to operate (Rule 203) and must comply with NSR requirements (set forth in SCAQMD Regulation XIII). NSR sets forth pre-construction review requirements for new, modified, or relocated facilities to ensure that the operation of such facilities does not interfere with progress in attainment of State and national ambient air quality standards and that future economic growth within the South Coast is not unnecessarily restricted. The specific air quality goal of NSR is to achieve no net increases from new or modified permitted sources of nonattainment pollutants or their precursors.

During construction, the project would be subject to the requirements of Rule 403 – Fugitive Dust. SCAQMD Rule 403 does not require a permit for construction activities, per se, but rather, sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the South Coast Air Basin. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) such that the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source. SCAQMD Rule 403 also prohibits a construction site from causing an incremental PM-10 concentration impact at the property line of more than 50 micrograms per cubic meter as determined through PM-10 high-volume sampling, but the concentration standard and associated PM-10 sampling do not apply if specific measures identified in the rule are implemented and appropriately documented.

SCAQMD Rule 403 identifies two sets of specific measures: one for high wind conditions and the other for more normal wind conditions.

When wind gusts exceed 25 miles per hour, neither the sampling requirement nor the general requirement apply so long as the following measures are implemented and appropriately documented:

Source	Control Measure
Earthmoving	Cease all active operations, or apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed Surface Areas	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days, apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; or Apply chemical stabilizers prior to wind event, or Apply water to all unstabilized disturbed areas 3 times per day. (If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day); or Establish a vegetative ground cover within 21 days after active operations have ceased. (Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all time thereafter); or Utilize any combination of the three measures immediately preceding such that, in total, these actions apply to all disturbed surface areas.
Unpaved Roads	Apply chemical stabilizer s prior to wind event, or apply water twice per hour during active operation, or stop all vehicular traffic.
Open Storage Piles	Apply water twice per hour, or install temporary coverings.
Paved Road Track-out	Cover all haul vehicles, or comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both pubic and private roads.

During normal wind conditions (i.e., with wind gusts less than 25 miles per hour), the sampling requirement does not apply so long as the following measures are implemented and appropriately documented:

Source	Control Measure
Earthmoving (not including cut and fill)	Maintain soil moisture content at a minimum of 12 percent, or for earthmoving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earthmoving (construction fill areas)	Maintain soil moisture content at a minimum of 12 percent. For areas which have an optimum moisture content for compaction of less than 12 percent, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content.
Earthmoving (construction cut areas)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed Surface Areas (except completed grading areas)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust, must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed Surface Areas (completed grading areas)	Apply chemical stabilizers within five working days of grading completion; or apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, except any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; or establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter.
Inactive Disturbed Surface Areas	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, except any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; or apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; or establish a vegetative ground cover within 21 days after active operations have ceased (ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter); or utilize any combination of the above three measures such that, in total, these actions apply to all inactive disturbed surface areas.

Source	Control Measure
Unpaved Roads	Water all roads used for any vehicular traffic at least once per every two hours of active operations; or water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; or apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open Storage Piles	Apply chemical stabilizers; or apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; or install temporary coverings; or install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.

Finally, SCAQMD Rule 403 requires those engaged in hauling operations to take actions necessary to prevent or remove (within one hour) the track-out of bulk material onto public paved roadways. Alternatively, one may implement these specific actions:

- Pave or apply chemical stabilization at sufficient concentrations and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet; or

- Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.

Under either specific alternative course of action, the following additional requirements apply:

- Removal of track-out material at anytime it extends for a cumulative distance of greater than 50 feet onto any paved public paved road during active operations; and

- Remove all visible roadway dust track-out upon public paved roadways as a result of active operations at the conclusion of each workday when active operations cease.

Existing Air Quality Conditions

SCAQMD operates a regional air quality monitoring network that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-8** is a summary of regional monitoring data collected over the past four years for those pollutants for which the South Coast is, or has been, designated "nonattainment."

As shown in **Table 4.3-8**, the regional monitoring network has recorded violations of the state ozone standard on an average of approximately 116 days per year over the past four years.

Coastal monitoring stations, such as those in western Los Angeles County and Orange County, record the fewest violations while inland stations, such as those in eastern Riverside County and southwestern San Bernardino County, record the most violations. Violations of national one-hour and national eight-hour ozone standards occur less frequently: on approximately 42 and 93 days per year, respectively.

TABLE 4.3-8
BASINWIDE SUMMARY OF MONITORING DATA FOR THE SOUTH COAST AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.244**	**0.174**	**0.184**	**0.190**
Days over State Standard			107	111	115	131
Days over National Standard			60	39	33	36
Highest 8-hour average, ppm/	NA	0.08	**0.206**	**0.142**	**0.149**	**0.144**
Days over National Standard			93	93	94	93
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	**13.3**	**11.2**	**10.1**	7.61
Days over State Standard			13	11	6	0
Days over National Standard			13	7	3	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.01	0.02	0.04	0.01
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	**0.255**	**0.307**	0.214	0.114
Highest Annual average, ppm	---	0.053	0.043	0.051	0.044	NA
Days over State Standard			1	NA	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**116**	**183**	**139**	**95**
Days over State Standard			186	258	246	17
Days over National Standard			0	6	0	0
Highest annual average, $\mu g/m^3$	30	50	**43**	**65**	**55**	**48**

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Riverside station as regional values were not available.
/c/ 2001 data taken from the San Bernardino station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

Table 4.3-8 also shows that state and federal carbon monoxide standard standards have been violated on an average of 8 and 6 days per year over the past four years, respectively. There have been no violations of sulfur dioxide standards. For nitrogen dioxide, violations of the ambient standard are very rare (<1day per year). Finally, the regional monitoring network records violations of the state 24-hour and annual PM-10 standards on a regular basis.

San Diego Air Basin

The San Diego Air Basin (SDAB) is defined by the borders of San Diego County. The San Diego County Air Pollution Control District (SDCAPCD) is the agency with air pollution control authority over SDAB, which covers the county of San Diego. The jurisdictional boundary of SDCAPCD coincides with the boundary of SDAB.

Climate and Topography

San Diego County is characterized by a long, narrow coastal plain extending along the entire length of the western edge of the county. At the southern end of the coastal plain lies the San Diego Bay. In the northern part of the county, the plain is narrow, and to the east gives way to steeply sloping hills, which in turn rise to mountains of 1,700 to 2,000 feet elevation or more. The climate of SDAB is influenced strongly by the Pacific Ocean and its semi-permanent pressure systems, which produce wet winters and dry summers. The area displays the typical southern California climatic transition from seashore to mountain summits, encompassing each of the five major southern California climatic zones. Generally, SDAB experiences a mild climate tempered by cool sea breezes with light average wind speeds. This mild pattern is interrupted occasionally by periods of extremely hot weather, winter storms moving inland from the Pacific Ocean, or Santa Ana winds. Subsidence inversions occur frequently over the air basin, contributing with strong sunlight and the restraining influence of topography to conditions that are conducive to the formation of photochemical pollutants, such as ozone.

Attainment Status

SDAB is currently designated as a nonattainment area for state and national one-hour-average ozone standards and as a nonattainment area for the state PM-10 standard (CARB, 1999). SDAB is further classified as a “severe” nonattainment area with respect to the national one-hour ozone standard. The western three-quarters of SDAB is also designated as a “maintenance” area for the national carbon monoxide standard, which denotes that it had once been designated as a federal nonattainment area for that standard.

Plans and Policies

San Diego’s original portion of the SIP, known as the *Regional Air Quality Strategy*, was developed in the early to mid-1970s and subsequently revised in 1979, 1982, 1992, 1993 and 1994. Substantial air quality improvement has been made. By 1990, SDAB was no longer “nonattainment” for national standards for nitrogen dioxide and particulates, and thus post-1990 SIP revisions were focused on the two pollutants, ozone and carbon monoxide, for which the air basin remained “nonattainment.” The latest SIP was submitted to U.S. EPA in 1994. The 1994

SIP approved by the EPA in January 1997 predicted attainment of the national ozone standard by 1999, and in 1999, for the first time since air quality monitoring began in San Diego County, no exceedances of the national one-hour ozone standard were recorded within SDAB.

With respect to national carbon monoxide standards, the EPA has re-designated SDAB as "attainment" and has approved a "Maintenance Plan" that shows how the standard will continue to be maintained in the future. This Maintenance Plan represents the current carbon monoxide SIP for SDAB.

In 1991, the Regional Air Quality Strategy (RAQS) was developed to meet the requirements of the CCAA, which addressed the "nonattainment" status of the air basin with respect to state standards for ozone, carbon monoxide, and nitrogen dioxide (SDAPCD, 1992). As required under state air quality planning law, RAQS has been updated on a triennial basis. Since the air basin had achieved "attainment" of the state carbon monoxide and nitrogen dioxide standards, the first triennial update for SDAB (the 1995 Update) addressed only ozone nonattainment issues. A second triennial update (1998 Update), which includes several revised control measures, was adopted by SDAPCD in June 1998.

Rules and Regulations

Air Quality in SDAB is regulated by SDAPCD through its permit authority over most types of stationary sources in San Diego County and through its planning functions. SDAPCD exercises permit authority through its *Rules and Regulations*. The types of emissions sources that would be associated with the project, including mobile equipment and trucks related to construction, are generally not subject to SDAPCD permitting requirements. However, certain SDAPCD rules apply to all projects, such as nuisance rules and restrictions on use of cutback and emulsified paving materials.

Existing Air Quality Conditions

SDAPCD operates a regional air quality-monitoring network that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-9** is a summary of regional monitoring data collected over the past four years for those pollutants for which SDAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-9**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 30 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occur less frequently: on approximately 3 and 19 days per year, respectively. Coastal monitoring stations record the fewest exceedances while inland stations, in the foothills east of the metropolitan area, record the most exceedances. **Table 4.3-9** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years.

TABLE 4.3-9
SUMMARY OF MONITORING DATA FOR THE SAN DIEGO AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.164**	**0.124**	**0.124**	**0.135**
Days over State Standard			54	27	24	13
Days over National Standard			9	0	0	1
Highest 8-hour average, ppm/	NA	0.08	**0.141**	**0.100**	**0.106**	**0.116**
Days over National Standard			35	16	16	8
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	4.8	6.0	5.9	5.11
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.02	0.02	0.01	0.015
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /b/						
Highest 1-hour average, ppm	0.25	---	0.132	0.172	0.117	0.070
Highest Annual average, ppm	---	0.053	0.023	0.026	0.024	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /b/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**89**	**121**	**139**	**64**
Days over State Standard			108	126	111	1
Days over National Standard			0	0	0	0
Highest annual average, $\mu g/m^3$	30	50	**39**	**48**	**32**	27

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Chula Vista station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

For PM-10 **Table 4.3-9** shows that exceedances of the state 24-hour and annual standards frequently occur in the basin although the four year trend shows a declining incidence of exceedances.

Salton Sea Air Basin

The Salton Sea Air Basin (SSAB) includes all of Imperial County and the central one-third portion of Riverside County. The project area includes only portions of Imperial County as shown in **Figure 3-4** of Chapter 3, Project Description of this document. The Imperial County Air Pollution Control District (ICAPCD) is the agency with air pollution control authority over all of Imperial County.

Climate and Topography

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

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

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

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

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

of this type of inversion. Subsidence inversions are common from November through June, but appear to be relatively absent July through October.

Attainment Status

Imperial County is designated as a "transitional" federal nonattainment area for ozone and as a "moderate" federal nonattainment area for PM-10. Imperial County is also classified as a "moderate" nonattainment area for the state ozone standard. Except the area of Calexico, which is classified as nonattainment, the remainder of the County is unclassified with respect to the state CO standard. The entire SSAB is classified as "nonattainment" with respect to the state PM-10 standard. The County is either attainment or unclassified with respect to other state and national ambient air quality standards.

Plans and Policies

Three air quality plans apply to Imperial County, two related to ozone and one related to the national PM-10 standard. In 1979, Imperial County was designated as a nonattainment area due to periodic violations of the national oxidant standard (which has been replaced by the current ozone standard). In response to that designation, Imperial County prepared a "nonattainment plan" in 1979 as required by federal law. The 1979 nonattainment plan became the federal ozone plan for Imperial County. It proposed the adoption and implementation of a set of stationary source control measures designed to attain the national ozone standard by the end of 1987. Under the FCAA Amendments of 1990, Imperial County's designation of nonattainment for the national ozone standard was confirmed under provisions of the Act that also recognize the possibility that international border areas may face special problems in attaining the standard.

The state ozone plan, the *1991 Air Quality Attainment Plan*, was prepared in compliance with the CCAA.[1] The *1991 Air Quality Attainment Plan* recognizes the substantial influence of pollutant transport from Mexico and the SCAB on the ozone problem in Imperial County but also includes a stationary source control measure program to reduce emissions generated within the County. The state ozone plan normally is updated on a triennial basis, but since the SSAB (which includes Imperial County) has a unique air quality problem in that an overwhelming significant portion of its air pollution is from upwind sources, an update to the *1991 Air Quality Attainment Plan* will not be required until the significance of these upwind sources has been quantified.[2]

The applicable PM-10 air quality plan is the federal *State Implementation Plan for PM-10 in the Imperial Valley*.[3] The PM-10 plan includes a range of measures intended to achieve attainment of the national PM-10 standards in the Imperial Valley Planning Area, which covers the western three-quarters of the county.

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1 Imperial County Air Pollution Control District, *1991 Air Quality Attainment Plan*, April 1992.

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

3 Imperial County Air Pollution Control District, *State Implementation Plan for PM-10 in the Imperial Valley*, June 1993.

Both federal and state ozone plans rely heavily upon stationary source control measures set forth in ICAPCD's *Rules and Regulations*, including New Source Review (NSR). ICAPCD Rule 207 contains the NSR requirements for new stationary sources proposed within ICAPCD's jurisdiction. As part of the ozone attainment strategy under the applicable federal and state air quality plans, ICAPCD has tightened NSR requirements to provide for no significant net increase in emissions from new and modified stationary sources. One of the purposes of Rule 207 is to provide mechanisms through which new sources can be allowed to operate without interfering with the attainment or maintenance of ambient air quality standards.

The federal PM-10 plan relies on control of area sources, known as "fugitive" dust sources, such as track out/carry out, unpaved roads, bulk material handling activities, material transport activities, and haul trucks. To regulate such sources, ICAPCD adopted Regulation VIII (Fugitive Dust Requirements for Control of Fine Particulate Matter), which contains the measures from the PM-10 plan for attaining the national PM-10 standards.

Rules and Regulations

ICAPCD is the regional agency with permit authority over most types of stationary emission sources in the Imperial County. As with other air districts, ICAPCD exercises permit authority through its *Rules and Regulations*. Rule 2-201 requires all new and modified sources of emissions to obtain an Authority to Construct and a Permit to Operate. However, Rule 2-202.E exempts stationary internal combustion engines less than 50 hp from permitting requirements. Portable equipment such as construction equipment are also exempt from permitting requirements if they hold a valid registration under the Statewide Portable Equipment Registration Program pursuant to Title 13, Article 5, Sections 2450 - 2465 of the California Code of Regulations.

Existing Air Quality Conditions

Table 4.3-10 is a summary of regional monitoring data collected over the past four years for those pollutants for which SSAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-10**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 68 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 12 and 38 days per year, respectively, over the same period.

Table 4.3-10 shows that state and federal carbon monoxide standard standards have been violated on an average of 8 and 7 days per year over the past four years, respectively. There have been no violations of sulfur dioxide standards. For nitrogen dioxide, violations of the ambient standard occurred in 1998 and 1999 but levels have declined in the last two years to below the standard level.

For PM-10, the regional monitoring network records exceedances of the state and federal 24-hour and annual standards at one or more of the monitoring stations on a frequent basis.

TABLE 4.3-10
SUMMARY OF MONITORING DATA FOR THE SALTON SEA AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.236**	**0.171**	**0.169**	**0.137**
Days over State Standard			73	88	54	56
Days over National Standard			13	25	5	6
Highest 8-hour average, ppm/	NA	0.08	**0.136**	**0.110**	**0.113**	**0.113**
Days over National Standard			40	35	33	43
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	**14.4**	**17.9**	**15.5**	1.41
Days over State Standard			12	13	7	0
Days over National Standard			8	11	6	0
Sulfur Dioxide						
Highest 24-hour average, ppm	0.04	0.14	0.02	0.02	0.01	NA
Days over State Standard			0	0	0	NA
Days over National Standard			0	0	0	NA
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	**0.257**	**0.286**	0.192	0.081
Highest Annual average, ppm	---	0.053	0.016	0.018	0.016	NA
Days over State Standard			NA	NA	0	0
Suspended Particulate Matter /b/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**176**	**227**	**268**	**383**
Days over State Standard			234	264	312	18
Days over National Standard			12	30	33	1
Highest annual average, $\mu g/m^3$	30	50	**59**	**66**	**73**	**45**

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Palm Springs station as regional values were not available.
/c/ 2001 data taken from the El Centro station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

4.3.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Generally, a project would have the potential to have a significant effect 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 nonattainment pollutant;
- expose sensitive receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.

In addition, for analysis of individual projects, many of the air districts have developed air quality thresholds and tests of significance used to determine whether project-related air quality impacts need to be mitigated. These thresholds vary by air district and are summarized in **Table 4.3-11**. Most of the thresholds of significance shown in **Table 4.3-11** are based on CEQA air quality guidelines published by individual air districts. Some air districts have not identified significance thresholds.

Some air districts have set significance thresholds for both project construction and operation. Others, such as BAAQMD and the SJVUAPCD have opted not to set significance thresholds for construction. Instead, construction activities within these air districts are required to implement certain mitigation measures identified by the local air district that will reduce impacts to less than significant levels.

Emissions increases resulting from the installation of telecommunications infrastructure will have to be evaluated against applicable significance criteria recommended by the local air districts whose jurisdictions cover the areas in which the infrastructure would be located.

The primary impact of air quality emissions resulting from subsequent activities would be temporary and result from construction activities associated with installation of fiber optic cable facilities. Over the operational phase of these activities, emissions could be generated by the infrequent operation of emergency backup generators at potential regenerator / OP-AMP stations during electrical outages and maintenance activities and from a very small number of occasional motor vehicle trips associated with maintenance activities.

METHODOLOGY TO ESTIMATE CONSTRUCTION EMISSIONS

As described in Section 3.3, Project Description, installation of fiber optic cable facilities as part of subsequent activities could involve various numbers of construction crews performing different activities at various times in various locations. The three primary methods of installation of fiber optic cable facilities are:

TABLE 4.3-11
SIGNIFICANCE THRESHOLDS FOR CONSTRUCTION AND OPERATIONAL EMISSIONS FROM SUBSEQUENT ACTIVITIES

Construction Emissions

	Significance Thresholds (lb/day)					
Local Air District	**ROG**	**NO_X**	**PM-10**	**CO**	**SO_2**	**Basis**
Sacramento Metropolitan AQMD	None[a]	85	275	N/A	N/A	SMAQMD CEQA Guidelines
Bay Area AQMD[b]	N/A	N/A	N/A	N/A	N/A	BAAQMD CEQA Guidelines
Monterrey Bay Unified APCD	N/A	N/A	82	N/A	N/A	CEQA Air Quality Guidelines
San Joaquin Valley Unified APCD[c]	N/A	N/A	N/A	N/A	N/A	SJVUAPCD Guidelines
South Coast AQMD[d]	75	100	150	550	150	CEQA Air Quality Handbook
San Diego County APCD	75	100	150	550	150	SCAQMD Guidelines Used[e]
Imperial County APCD	75	100	150	550	150	SCAQMD Guidelines Used[f]

Operational Emissions

	Significance Thresholds (lb/day)					
Local Air District	**ROG**	**NO_X**	**PM-10**	**CO**	**SO_2**	**Basis**
Sacramento Metropolitan AQMD	65[g]	65[h]	275	N/A	N/A	SMAQMD CEQA Guidelines
Bay Area AQMD	80	80	80	550	N/A	BAAQMD CEQA Guidelines
Monterrey Bay Unified APCD	137	137	82	N/A	150	CEQA Air Quality Guidelines
San Joaquin Valley Unified APCD	10 tpy	10 tpy	N/A	N/A	N/A	SJVUAPCD Guidelines
South Coast AQMD	55	55	150	550	150	CEQA Air Quality Handbook
San Diego County APCD	55	55	150	550	150	SCAQMD Guidelines Used
Imperial County APCD	55	55	150	550	150	SCAQMD Guidelines Used

NOTE: lb/day = pounds per day; tpy = tons per year

[a] Effective March 28, 2002 the SMAQMD has revised the construction threshold for ROG from 85 lb/day to none, SMAQMD, April 12, 2002.
[b] All construction impacts are considered significant, however, with application of standard dust control measures impacts are mitigated to less than significant.
[c] Ibid.
[d] While daily values are shown, the following quarterly values apply as well; 2.5 tons per quarter of ROC and NOx, 24.75 tons per quarter of CO, and 6.75 tons per quarter of PM-10 and SO2.
[e] SDAPCD has no current significance thresholds for CEQA purposes. SCAQMD guidelines have been assumed for the purposes of this analysis.
[f] ICAPCD has no current significance thresholds for CEQA purposes. SCAQMD guidelines have been assumed for the purposes of this analysis.
[g] Effective March 28, 2002 the SMAQMD has lowered the operation threshold for ROG and NOx from 85 to 65 lb/day, SMAQMD, April 12, 2002.
[h] Ibid.

SOURCE: Environmental Science Associates, 2002

- Underground Installation – This includes the following three methods for the installation of conduit followed by installation of fiber optic cable:
  - Open Trenching (street and dirt)
  - Directional Boring
  - Plow and Trench installation
- Aerial Installation
- Installation of cable on Transmission Towers (OPGW)

From an air quality emissions perspective, the primary emissions generating activities would be those involving ground disturbance or use of larger construction equipment. Emissions from a single crew for each of these three activities have been evaluated using US EPA and CARB emissions factors and data provided by Sempra Communications. These activities are:

- open trenching. Dirt trenching was used to evaluate emissions as it represents the worst case scenario (compared to street trenching and plow and trench installation);
- directional boring; and
- OPGW installation.

Total construction emissions would vary depending on the type and number of construction crews operational on any given day.

For street trenching, it is assumed that the construction zone at each work site on any given day would be no more than approximately 20 to 40 feet wide and, no more than 1,000 feet in length for a total disturbed area of less than one acre. Note that a less invasive form of dirt trenching (plow and trench) may be proposed for use in some areas. For the purposes of this analysis, although plow and trench operations would typically produce a smaller ground disturbance area, use less equipment and result in lower emissions it will be considered to have essentially the same emissions as dirt trenching to provide a conservative estimate. Furthermore, street trenching involves more equipment and produces higher levels of emissions than dirt trenching. Again for this analysis, street trenching operations will be used to conservatively estimate the impact of all trenching operations.

Directional boring would involve ground disturbance only at the entry and exit points of the bore and at construction staging areas. OPGW installation would involve minimal to no ground disturbance; however, emissions from support vehicles and the potential use of helicopters in installation would occur.

Given the size of the project area and an unknown number of crews or mix of crews required to perform construction throughout the project area, the total daily construction emissions cannot be determined for this analysis. However, the individual expected daily emissions from each type of

crew can be estimated. These are presented in **Table 4.3-12**. Based on the location of subsequent activities and the number and mix of crews that could be used, total construction emissions would be calculated using emissions estimates for different crews in **Table 4.3-12** and then compared to applicable significance thresholds in **Table 4.3-11** to determine significance of construction impacts. Appropriate mitigation measures recommended below shall be implemented as appropriate based on the significance of the impact.

TABLE 4.3-12
EMISSIONS FROM A SINGLE CREW FOR DIFFERENT CONSTRUCTION TECHNIQUES (lbs./crew)

Crew	ROG	NO_X	PM-10	CO	SO_2
Trenching	3	26	3	21	2
Drilling	5	16	2	75	1
OPGW[1]	11	46	10	20	1

SOURCE: Environmental Science Associates, 2002

IMPACT DISCUSSION

Impact AIR-1: Construction activities could increase local pollutant concentrations of particulate matter (from fugitive dust) and carbon monoxide. (Potentially Significant)

Ground disturbance caused by installation of telecommunications infrastructure could temporarily affect pollutant concentrations within the project area primarily due to fugitive dust sources, such as earthmoving activities and vehicle travel over unpaved surfaces or paved surfaces heavily laden with earthen materials (e.g., from soil inadvertently spilled onto the traveled way). Fugitive dust emissions from construction activities would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. Fugitive dust emissions from construction activities would be relatively minor if fiber optic cable facilities installation would takes place within existing roadways. This would minimize the extent of vehicle travel over unpaved surfaces, which is typically one of the principal sources of construction-related fugitive dust. However, circumstances may exist where construction activities could result in substantial quantities of dust, when construction occurs in unpaved areas. In the absence of mitigation measures, this would be a significant impact, and as a result, local visibility and PM-10 concentrations may be adversely affected on a temporary and intermittent basis during the construction period.

For installation of OPGW, while no surface disturbance would be required, vehicle travel over paved and unpaved surfaces would generate dust similar to ground installation activities.

To reduce these potentially significant effects to a less-than-significant level, Sempra Communications would require the construction contractors to implement a construction dust

abatement program, which is described below, as part of the project. Implementation of the dust abatement program would reduce the chance that PM-10 standards would be violated in the project area or that visibility would be significantly affected during the construction period. This dust abatement program would also provide the basis for the project's compliance with any requirements of local air pollution agencies with respect to fugitive dust (such as SMAQMD Rule 403).

With respect to carbon monoxide, the project would not significantly affect local concentrations either during the construction phase or the operational phase. During the construction phase, the linear progression of the construction process itself would ensure that carbon monoxide concentrations would not accumulate in any one location such that exceedances would be likely to occur due to construction equipment exhaust. Ground-disturbing installation activities along roadways could temporarily disrupt existing transportation and circulation patterns in the vicinity. Traffic flows would be affected by lane blockages or street closures leading to a temporary increase in travel times, queue times at intersections and generally and increase in congestion on available lanes and detour routes. This could incrementally and temporarily affect carbon monoxide concentrations along these routes. However, this impact would be a less than significant given the mitigation measures outlined in the traffic section of this document to reduce impacts on traffic flow and circulation. These mitigation measures would also ensure that the associated impacts on carbon monoxide concentrations would be less than significant. Also, since Sempra Communications could use directional boring techniques (rather than open trenching) to cross major roadways, local traffic patterns, and associated local carbon monoxide concentrations, could be largely unaffected by project construction.

Mitigation Measure AIR-1a: Sempra Communications would require construction contractors to implement the following construction dust abatement program:

- Water all active construction areas at least twice daily;
- Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard;
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved surfaces at construction sites; and
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Mitigation Measure AIR-1b: For subsequent activities located within the jurisdictions of SCAQMD, SDCAPCD, and ICAPCD, Sempra Communications would require construction contractors to implement measures required under SCAQMD Rule 403 (as described above in Section 4.3.1) for high wind and normal wind conditions to reduce PM-10 emissions from the

various fugitive dust sources associated with project construction, and maintain the necessary documentation that demonstrates compliance with the rule.

Mitigation Measure AIR-1c: For subsequent activities located within the jurisdiction of SJVUAPCD, construction contractors shall implement a dust-abatement program that complies with the District's Regulation VIII Control Measures to reduce the contribution of project construction to local respirable particulate matter concentrations. This program shall include the following measures:

- Water, chemical soil stabilizers/suppressants, or vegetative ground cover shall be used to control fugitive dust from all disturbed areas, including storage piles, which are not being actively used at the construction site.
- Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust from all unpaved roads on-site and all off-site unpaved access roads to the construction site.
- Applications of water or presoaking shall be performed to control fugitive dust from all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities.
- Cover and wet all materials transported off-site or require all trucks to maintain at least six feet of freeboard from the top of the container.
- Remove accumulated mud or dirt from adjacent public streets at least once every 24 hours during construction periods. (The use of dry rotary brushes is expressly prohibited, except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is also expressly forbidden.)
- Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust after each addition of materials to or removal of materials from all storage piles.

Significance after Mitigation: Less than Significant.

Impact AIR-2: Emissions from construction activities could add to the regional pollutant loading of the area in air basins where air districts have set significance thresholds for both project construction and operation. (Potentially Significant)

Subsequent activities could result in emissions of ROG, NO_X, sulfur oxides, and PM-10 during the construction phase primarily from construction equipment exhaust, construction material haul trips and construction employee commute trips. Emissions from construction equipment exhaust would vary depending on the type of construction technique used. The mix of construction equipment would vary between the different types of construction: street trenching, directional boring and aerial installation. The impact of these emissions on regional air quality would

depend on the number of different construction crews operational on a given day. The total emissions from all construction crews operating on the day of maximum activity would have to be compared to the significance thresholds of the applicable air quality management district to determine the significance of construction impacts of the proposed activities. Also, as part of the project the following mitigation measures would be implemented to ensure that regional emissions of ROG, NO_X and PM-10 from project construction are maintained at a less than significant level.

Mitigation Measure AIR-2a: Sempra Communications would require its construction contractors to comply with the following requirements during project construction:

- Use of California on-road diesel fuel for all diesel-powered construction equipment;
- Use of construction equipment that is properly tuned and maintained in accordance with manufacturers' specifications;
- Use of best management construction practices to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use).
- Suspension of emissions-generating construction activities during "Stage 2" smog alerts. Stage 2 air pollution episodes occur under the California Air Pollution Emergency Episode Plan when hourly ozone concentrations reach 0.35 parts per million (CARB, 1998).

Mitigation Measure AIR-2b: To the extent feasible, Sempra Communications would employ a maximum of number work crews on any given workday, such that daily, quarterly, or yearly levels of significance for each air district shown on **Table 4.3.11** are not exceeded. This would reduce any significant impacts of construction to the regional pollutant burden to a less than significant level.

Mitigation Measure AIR-2c: For subsequent activities where implementation of Mitigation Measure AIR-2b is not feasible, Sempra Communications would require the prime construction contractor to use aqueous emulsified fuels instead of diesel fuel. CARB recently certified Lubrizol Corporation's "PuriNOx" as an alternative fuel for diesel engines and the fuel is available commercially. Based on data submitted, CARB has determined that use of PuriNOx reduces NOx emissions by 14 percent and PM-10 emissions by 63 percent.

Significance after Mitigation: Implementation of Mitigation Measures AIR-2a and -2b would reduce the impact of construction emissions to a less than significant level. In cases where Mitigation Measure AIR-2b is not feasible, even with the implementation of the Mitigation Measure AIR-2c, the residual impact of construction emissions would be significant. This would be a significant unavoidable impact of the project on air quality.

Impact AIR-3: Operational emissions associated with subsequent activities could introduce additional emissions into the area that could conflict with the applicable regional air quality plans. (Potentially Significant)

As noted earlier, subsequent activities could involve construction in areas for which ozone, PM-10 and carbon monoxide plans may have been developed. Ozone plans rely heavily on stationary source control measures while carbon monoxide plans rely primarily on mobile source control measures. PM-10 plans rely on both stationary and mobile source control measures. Construction activities would not result in any stationary source emissions. The primary source of emissions of ozone precursors, PM-10 and carbon monoxide would be mobile sources such as construction equipment and off-highway trucks. The regional air quality plans for most air districts in the project area include construction emissions in their emissions inventory that form the basis of the applicable regional air quality plans. Therefore, provided that Mitigation Measures AIR-1a, -1b, -1c, and -2a discussed under Impacts AIR-1 and -2 are implemented, the emissions from construction equipment would not be considered to conflict with the applicable regional air quality plans.

Subsequent activities could involve the installation of regeneration / OP-AMP stations. Operational emissions of ROG, NOx, and PM-10 could be generated from the operation of back-up generators at any regeneration / OP-AMP stations proposed and from maintenance related motor vehicle trips to these stations. However, motor vehicle emissions would be negligible since any regeneration / OP-AMP stations proposed would be unmanned and routine maintenance-related motor vehicle activity would amount to approximately four to five trips per week for each regeneration / OP-AMP site.

The electronic equipment at any regeneration / OP-AMP stations proposed would be powered by electricity from the utility power grid but would be supported by battery-powered back-up systems or back-up diesel generator systems installed within the buildings in which the equipment would be located. The occasional operation of these back-up, diesel-powered generators during power outages and routine maintenance activities would be the primary source of emissions during the operational phase of the project. Though this would be a temporary and periodic increase in emissions, based on their size, operational characteristics and the requirements of the local air quality management agency, these generators could be subject to several Rules and Regulations such as permit requirements, BACT standards, NSR offsets and other specific requirements for stationary internal combustion engines. Some air districts exempt emergency back-up generators from some of these requirements. To ensure that the operation of the project would be in compliance with all applicable air district rules and regulations, before construction and operation of any back-up generators, Sempra Communications would identify the rules and regulations of the local air district that would apply to the generators and ensure that the generators are constructed and operated in accordance with the requirements of those regulations. This would include checking the applicability of the permit conditions to the generator proposed to be installed and if required, obtaining air permit. Compliance with all applicable air district rules and regulations would insure that the project would not conflict with the regional air quality plans. In addition, Sempra Communications would implement the

following mitigation measures to maintain the operational emissions from the back-up generators at a less than significant level.

Mitigation Measure AIR-3a: Sempra Communications would limit the use of emergency diesel generators to back-up, nonutility electrical power generation purposes only (or for related testing and maintenance purposes) for an aggregate period not to exceed 200 hours per year as documented by an engine-hour meter or equivalent method;

Mitigation Measure AIR-3b: Use of diesel fuel with sulfur content shall not exceed 0.05 percent by weight.

Significance after Mitigation: Less than Significant.

Impact AIR-4: The project could expose sensitive receptors to substantial pollutant concentrations. (Potentially Significant)

If subsequent activities are proposed in residential areas, associated construction activities could result in exposure of sensitive receptors, such as residents, to substantial pollutant concentrations from fugitive dust emissions sources. However, as described under Impact AIR-1, Sempra Communications would implement a dust abatement program that would reduce these impacts to a less than significant level. With the implementation of the mitigation measures described under Impacts AIR-1 and AIR-3, this temporary impact would be reduced to a less than significant level.

Once operational, use of the back-up generators would not be expected to result in exposure of sensitive receptors to substantial pollutant concentrations due to the relatively small quantities of emissions that would be generated and their infrequent use. Furthermore Mitigation Measures AIR-3a and -3b further reduce this impact. Sempra Communications would ensure that the generators would be in compliance with all applicable air district rules and regulations and would sited such that the impact to any nearby sensitive receptors would be reduced. Therefore, over operational phase, the project would not expose sensitive receptors to substantial pollutant concentrations.

Mitigation Measure: Implement Mitigation Measures AIR-3a and -3b.

Significance after Mitigation: Less than Significant.

Impact AIR-5: The project could create objectionable odors affecting a substantial number of people. (Less than significant)

The project would not include the types of emissions sources or activities that are normally associated with odor impacts.

Mitigation Measure: No mitigation is required.

REFERENCES – Air Quality

California Air Resources Board, 2001 State and National Area Designation Maps of California; http://www.arb.ca.gov/desig/adm/adm.htm.

California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

Imperial County Air Pollution Control District, *1991 Air Quality Attainment Plan*, April 1992

Imperial County Air Pollution Control District, *State Implementation Plan for PM-10 in the Imperial Valley*, June 1993. N/A

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

SMAQMD Letter to Lead and Responsible Agencies, from Norm Covell, SMAQMD APCO, dated April 12, 2002.

South Coast Air Quality Management District, *1997 Air Quality Management Plan*, November 1996; http://www.aqmd.gov/aqmp/97aqmp/

4.4 BIOLOGICAL RESOURCES

This chapter describes biological resources within the project area proposed by Sempra Communications, and evaluates the potential impacts of the proposed project. It includes a description of plant communities and wildlife habitats, wetlands and other sensitive habitats, and special status plant and wildlife species present or potentially present within the project area. Existing conditions are presented in nine biological regions in the project area are described in Section 4.4.3 through Section 4.4.12 below. **Table 4.4-1** identifies the project area biological regions and the counties each region includes. Vegetation maps for each of these counties are shown in Figures **4.4-1** through **4.4-15** at the end of this section. Extensive summary tables referenced in this chapter are located in Appendix E.

TABLE 4.4-1
SEMPRA COMMUNICATIONS PROJECT AREA BIOLOGICAL REGIONS AND CORRESPONDING COUNTIES

Project Area Region	Counties Included in Region
Sacramento Metropolitan	Sacramento
San Francisco Bay Area	Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara
Santa Cruz	Santa Cruz
Fresno	Fresno
Los Angeles Basin	Los Angeles, Orange
San Bernardino	San Bernardino
Riverside County	Riverside
San Diego	San Diego
Imperial	Imperial

4.4.1 DATA SOURCES AND METHODS OF ANALYSIS

The documentation of biological resources for the project area relies on existing information presented on a regional scale. The objective was to broadly inventory biological resources and provide sub-regional (*i.e.*, portions of counties) discussions of the project area. These discussions serve as an overall representative setting for consideration of potential project effects on biological resources, and if necessary, serve as a basis for further in-depth analysis for subsequent activities within the project area. Due to the programmatic nature of the project and extensive project area, no focused surveys were conducted in support of this document.

The California Gap Analysis Program[1] (GAP), a Statewide GIS-based habitat mapping inventory (Davis et al., 1998), and information from the California Wildlife Habitat Relationships (WHR) system (Mayer and Laudenslayer 1988) provided the basis for the description of plant communities and wildlife habitats evaluated in this document. The GAP data provided a uniform treatment of vegetation types for the broad array of geographies encompassed within this analysis. Vegetation types used in the GAP primarily follow a classification system developed for the California Department of Fish and Game (CDFG) by Holland (1986) although the GAP database simultaneously classifies areas by the slightly broader WHR habitat types. WHR links these vegetation types to the sensitive wildlife species associated with them. Utilizing GIS, Sempra Communications' project area boundaries were superimposed upon the publicly available GAP data to create an inventory of vegetation types and wildlife habitats within project area regions[2] (**Figures 4.4-1 through 4.4-15)**. These data are suitable for this type of large-scale preliminary inventory, but the resolution imposed by the mapping methods necessary to produce this data imposes limitations.

Additional sources consulted for special status species[3] information during the preparation of this document include CDFG, California Natural Diversity Data Base (CNDDB) (CDFG, 2002a) and its Special Animals list (CDFG, 2002b), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2002), U.S. Fish and Wildlife Service (USFWS) lists of proposed, candidate and listed threatened and endangered species that may occur in the project area (USFWS, 2002), documentation provided by Sempra Communications (Recon, 2000), and other planning documents in the project area (ESA 2000a, 2000b, 2001). These data were analyzed to highlight sensitive plant communities or wildlife habitats that may be extremely limited on a local or regional scale, suitable habitat for special-status plants and wildlife within the project area, and large wetlands, rivers or concentrations of smaller streams that present heightened implementation and regulatory complexity. Additional information from other fiber optic projects in the project area (ESA 2000a, 2000b, 2001; CPUC, 1999; EDAW, 2001a, 2001b; PB and ESA, 1998, 1999a, 1999b) was used to formulate focused lists of species with moderate to high potential of occurrence within specific fiber optic routes.

4.4.2 SCOPE OF ANALYSIS

This section describes assumptions and conventions that are applied to the analysis of biological resources throughout the project area.

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1 A major purpose of the GAP is to identify species, vegetation types, and species-rich areas that are underrepresented in existing managed areas. The word "gap" refers these deficiencies in the system of conserved lands.

2 GAP data of vegetation type is slightly more information rich than reflected in the maps. While each polygon on a map corresponds visually to one vegetation type in the key, the GAP database contains up to three vegetation types associated with each polygon. These represent the three most prevalent vegetation types in a polygon, with only the most prominent type reflected by the key. The inventory of vegetation types includes all database occurrences for polygons that occur in, or partially in, Sempra Communications' project boundaries.

3 Special status species are defined in the following section.

VEGETATION RESOURCES

For the purposes of this discussion, vegetation resources include both common and sensitive plant communities and special-status plant species. Due to the developed condition of much of the project area, natural vegetation is limited. Ornamental landscaping is included as a vegetation type, but is regarded as having marginal wildlife habitat value.

Plant Communities and Wildlife Habitats

The project is divided between several different ecological subregions (Miles and Goudey, 1998), and encompasses a broad array of topographic, geologic, and climatic conditions that contribute to the diversity of ecotypes. The major geographic subdivisions in Northern California are the Sacramento Valley, San Francisco Bay, and the Coast Ranges. The Southern California region includes the South Coast, Transverse Ranges and Peninsular Ranges. The definition and boundaries of geographical divisions follow the Jepson Manual (Hickman, 1993). Plant community descriptions are a synthesis of classifications by Holland (1986) and Sawyer and Keeler-Wolf (1995), the California WHR system, and mapping information as presented in the California GAP Project. For this environmental assessment, sensitive plant communities include those communities that are especially diverse, regionally uncommon, considered sensitive natural communities (as defined by Holland, 1986, or documented in CNDDB 2002), or covered by state or federal regulations (*e.g.*, Section 404 of the Clean Water Act and Section 1600 of the CDFG Code). Most sensitive plant communities are given special consideration because they are limited in extent due to habitat modification, and provide important ecological functions, such as water quality maintenance and essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species; therefore, they are considered sensitive from a botanical standpoint. Descriptions of common plant communities in the project area are included in this section of the document. The Existing Conditions sections identify and include descriptions of common and sensitive plant community occurring within each project area region.

Although subsequent activities proposed by Sempra Communications would traverse or abut a variety of geologic formations, climatic conditions, and associated plant communities, the overall diversity of biological resources is substantially limited by the disturbed and developed conditions that prevail over much of the project area.

Common Plant Communities and Associated Wildlife Habitat

Annual Grassland. Annual grasslands are herbaceous plant communities found throughout the project area. Due to extensive urban development, grasslands range from relatively sparse or small isolated patches, to extensive and densely vegetated areas (typically large tracts of grazing lands), depending on population density and land use. Typical plant species in these areas include annual grasses such as soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus)*, wild oats (*Avena sp.)*, and foxtail barley (*Hordeum murinum*), as well as a wide range of non-native and native, usually annual herbaceous plants. Grasslands in the project area provide habitat for reptiles and amphibians such as western fence lizard (*Sceloporus occidentalis*), northern alligator

lizard (*Elgaria coerulea*), and pacific tree frog (*Pseudacris regilla*), and birds including mourning dove (*Zenaida macroura*) and western meadowlark (*Sturnella neglecta*). In more rural areas, grasslands can also be important foraging grounds for aerial and ground foraging insect eaters such as *Myotis* bat species and pallid bat (*Antrozous pallidus*). Mammals such as Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), striped skunk (*Mephitis mephitis*), and black-tailed jackrabbit (*Lepus californicus*) may browse and forage within the grassland and thrive when varied natural habitats are available nearby. Small rodents attract raptors (birds of prey), many of them special status (see the discussion of wildlife resources section below) including red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), and Swainson's hawk (*Buteo swainsoni*) (Sacramento-San Joaquin Valley only).

Ruderal. Ruderal (disturbed and weedy) habitats are a conspicuous component of road shoulders and other developed or disturbed areas. This habitat type occurs frequently throughout the project area and is especially prevalent in semi-rural, low density residential and agricultural land use types. Where vegetated, these sites are dominated by weedy non-native plant species. Disturbed habitats are most prevalent in areas subject to frequent and often severe vegetation and soil disturbances by vehicles as a result of road maintenance, vehicle parking, and regular mowing. Ruderal habitats are most commonly characterized as areas immediately adjacent to paved and dirt roads and areas that have been used as parking areas. Other ruderal habitats may include disked or fallow fields, construction sites, levees, and railroad or other public utility rights of way.

Ruderal habitats provide limited foraging or nesting habitat for disturbance tolerant and non-native birds and small mammals (*e.g.*, English sparrow (*Passer domesticus*), European starling (*Sternus vulgaris*), house finch (*Carpodacus mexicanus*), Norway rat (*Rattus norwegicus*), and house mouse (*Mus musculus*)). Within the project area, the less disturbed ruderal areas may be occupied by ground squirrels and other rodents. Although these areas are generally depauperate for wildlife, under appropriate conditions they may support sensitive wildlife species such as Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (Sacramento-San Joaquin Valley only) and burrowing owl.

Urban Landscaping. Ornamental trees, shrubs, grasses and urban landscaped areas comprise a large portion of the vegetation throughout the majority of the project area due to the focus on predominantly urbanized areas. The majority of ornamental vegetation consists of non-native plant species. When landscaped areas become isolated within urban centers, away from natural habitats such as streams or wetlands, they provide little habitat for native wildlife and only rarely support special-status species. Common wildlife Species identified within these communities include European starling, house finch, yellow-billed magpie (*Pica nuttalli*), rock dove (*Columba livia*), northern mockingbird (*Mimus polyglottus*), and white-crowned sparrow (*Zonotrichia leucophrys*). With the exception of common rodents such as house mouse, Norway rat, Botta's pocket gopher, and western gray squirrel (*Sciurus griseus*), few mammals, and no amphibians or reptiles are expected in highly landscaped portions of the project area.

Agricultural. Agricultural habitats in the project area include croplands, vineyards, and both evergreen and deciduous orchards. Irrigated pastureland, as distinguished from non-irrigated rangeland/annual grassland, is included here, although its potential wildlife habitat value is similar to annual grassland. Agricultural areas are often subject to periodic discing, planting, harvesting, and the application of herbicides, pesticides, and fertilizers which prevent the establishment of native plant species and communities. A number of weedy plant species, including bristly ox-tongue (*Picris echiodes*), curly dock (*Rumex crispus*), and bull thistle (*Cirsium vulgare*) are associated with cultivated lands, and are adapted to disturbed, bare ground, rapid maturity, and high seed production. Agricultural lands may provide occasional habitat for transient mammals, reptiles, and amphibians, and have some value to birds. Small mammals, such as rabbits and rodents, forage on leaves and grasses, and in turn, may attract predatory raptors to agricultural areas. Orchard and vineyard habitat may provide foraging resources to mammals and birds such as mule deer (*Odocoileus hemionus*), California ground squirrel, northern flicker (*Colaptes auratus*), yellow-rumped warbler (*Dendroica coronata*), American robin (*Turdus migratorius*), and western scrub jay (*Aphelocoma californica*), and provide cover and nesting habitat to mourning dove and California quail (*Callipepla californica*). Uncultivated land within or around the perimeter of orchards and vineyards may also provide denning sites for the federal Endangered and California Threatened San Joaquin kit fox (*Vulpes macrotis mutica*) (Fresno and eastern San Francisco Bay Area regions).

Oak Woodland. Woodland habitats within the project area include valley oak, blue oak, black oak, coast live oak and interior live oak woodlands. In addition, blue oak-foothill-pine woodland habitat occurs in the project area within Santa Clara, Contra Costa, and Sacramento Counties. Engelmann oak woodlands occur in the project area within San Diego County. These upland plant communities range in extent from a few trees to large stands, the latter being in rural or agricultural areas.

Valley oak woodlands tend to be open forest communities with isolated valley oak trees (*Quercus lobata*) and a sparse annual grassland understory. At lower elevations, valley oak woodland may intergrade with blue oak woodlands with a similar structure of largely open canopy and annual grassland understory. Coast live oak woodlands have variable understory composition, depending upon the density of the oak canopy. Shade-tolerant understory species of dense coast live oak woodlands include California blackberry (*Rubus ursinus*) and toyon (*Heteromeles arbutifolia*). Where coast live oak woodland intergrades with chaparral or coastal scrub habitat, understory species include California sagebrush (*Artemesia californica*), coyote brush (*Baccharis pilularis*) and other species dominant in these scrub habitats as described below. Englemann oak woodlands often include coast live oaks (*Quercus agrifolia*) as a secondary dominant species. Interior live oak woodland communities are more common at higher elevations and are dominated by interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), buckeye (*Aesculus californica*), and California bay (*Umbellularia californica*). Shrub species include ceanothus (*Ceanothus* sp.), blue elderberry (*Sambucus mexicana*), toyon, and poison oak. Common species of the foothill woodlands are foothill pine (*Pinus sabiniana*), various oak species (*Quercus* sp.), and buckeye. Pine communities are not widespread in the project area, and are mostly limited to small, isolated trees or tree stands.

In urban settings, wildlife found in these woodland habitats are commonly associated with the "edge" environment between the woodland community and adjacent grasslands, chaparral, streams, or developed areas. Woodland communities support an abundant assortment of reptiles and amphibians such as western toad (*Bufo boreas*), Pacific tree frog, and Pacific slender salamander (*Batrachoseps pacificus*). Resident and migratory bird species found in interior live oak woodlands include spotted towhee (*Pipilo maculatus*), oak titmouse (*Baeolophus inornatus*), Hutton's vireo (*Vireo huttoni*), ruby-crowned kinglet (*Regulus calendula*), pacific slope flycatcher (*Empidonax difficilis*), northern flicker, hairy woodpecker (*Picoides villosus*), and yellow-rumped warbler. These areas are also important foraging grounds for aerial and ground foraging insectivores such as *Myotis* bat species and pallid bat. Raptors that breed and nest in local woodland communities include red-tailed hawk, sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), white-tailed kite, and others.

Eucalyptus Woodland. The dense shade created by the eucalyptus canopy, combined with the volatile chemicals contained in the bark and leaf litter, create poor growing conditions for most herbaceous and woody understory species. Consequently, the understory of this plant community is generally devoid of vegetation and consists of a thick layer of bark and leaves, except where openings in the canopy allow sufficient light to penetrate to the forest floor to support a few scattered forbs and grasses. Eucalyptus stands provide nesting and roosting habitat for various common bird species, such as American crow *(Corvus brachyrhynchos)* and common raven *(Corvus coma)*, as well as for red-tailed hawk and other raptors. Common reptiles such as gopher snakes *(Pituophis melanoleucus)* and northern alligator lizards may also inhabit the understory of these stands.

Mixed Evergreen Forest. Limited mixed evergreen forests occur within the project area in the San Francisco Bay Area, Santa Cruz, Los Angeles Basin, and San Bernardino regions. These communities in coastal areas of the San Francisco Bay Area and Santa Cruz regions may include redwood (*Sequoia sempervirens*), ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), California bay, coast live oak, and Monterey pine (*Pinus radiata*). Understory species include manzanita (*Arctostaphylos* sp.) and poison oak, as well as other shrub and herbaceous species. Ponderosa pine, bigcone spruce (*Pseudotsuga macrocarpa*), white fir (*Abies concolor*), and canyon live oak (*Quercus chrysolepis*) may make up the canopy of mixed evergreen forest communities in the Los Angeles Basin and San Bernardino regions. Associated species include Pacific madrone (*Arbutus menziesii*), California bay, and poison oak. Mixed evergreen forests provide foraging habitat for mule deer, California ground squirrel, dusky-footed woodrat (*Neotoma fuscipes*), acorn woodpecker (*Melanerpes formicivorus*), and western scrub jay. Raptors such as red-tailed hawk and great horned owl (*Bubo virginianus*) may nest in tall trees in this habitat. Western rattlesnake (*Crotalis viridis*), western fence lizard, and Pacific slender salamander may inhabit mixed evergreen forests in the project area.

Desert Scrub. Desert scrub is present in the project area only within the Imperial County region. Plant species associated with desert scrub include creosote bush (*Larrea tridentata*), white brittlebrush (*Encelia faroinosa*), beavertail pricklypear (*Opuntia littoralis*), and Douglas and rubber rabbitbrush (*Chrysothamnus viscidiflorus* and *C. nauseosus*). This habitat supports few

birds, but produces large numbers of seeds that support large numbers of small mammals, as their primary food source. These mammals include white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), pocket mouse (*Perognathus penicillatus*), and kangaroo rats (*Dipodomys* sp.). Migratory birds are not well adapted to desert life and typically pass through in spring and fall, when conditions are ideal for their journeys. Resident birds, however, depend on desert habitats, and Phainopepla (*Phainopepla nitens*) and white-winged doves (*Zenaida asiatica*) forage on the berries of desert plants, while Gambel's quail (*Callipepla gambelii*), black-throated sparrow (*Amphispiza bilineata*), Abert's towhee (*Pipilo alberti*), cactus wren (*Campylorhynchus brunneicapillus*), LeConte's thrasher (*Toxostoma lecontei)*, and sage sparrow (*Amphispiza belli*) forage for seeds in desert habitats. Greater roadrunners (*Geococcyx californianus*) catch small snakes, lizards, and insects. All migrant birds and some resident birds depend on water for drinking and bathing. However, some desert species like common raven, phainopepla, verdin (*Auriparus flaviceps*), elf owl (*Micrathene whitneyi*), lesser nighthawk (*Chordeiles acutipennis*), black-tailed gnatcatcher (*Polioptila melanura*), and ladder-backed woodpecker (*Picoides scalaris*) are not known to require free water for drinking and bathing.

Coastal Scrub. Coastal scrub habitat in the San Francisco Bay Area region of the project area includes the following plant communities: northern coastal scrub, central coastal scrub, and Diablan sage scrub. In the Southern California region, the project area includes Venturan coastal sage scrub, Diegan coastal sage scrub, and Riversidean sage scrub. Regionally, these coastal scrub communities also are regarded as sensitive plant communities due to a high degree of habitat loss. Coastal scrub habitat is characterized by low, woody shrubs, generally one to two meters tall. Bay Area coastal scrub communities occur on shallow, rocky slopes, whereas coastal scrub communities in Southern California usually occur on dry, steep slopes or alluvial plains. Typical species present in coastal scrub in the project area include coyote brush, California sagebrush, black sagebrush (*Artemesia nova*), bush monkeyflower (*Mimulus aurantiacus*), California buckwheat (*Eriogonum fasciculatum*), and poison oak. Coastal scrub provides nesting and foraging habitat for various common birds, including spotted and California towhees (*Pipilo crissalis*), bushtit (*Psaltriparus minimus*), western scrub jay, and California quail. Rapors may forage over such areas and prey upon some of these small birds, as well as small mammals and reptiles such as California ground squirrel, brush rabbit (*Sylvilagus bachmani*), and western fence lizard. Numerous special status plant and wildlife species occur in coast scrub habitats. San Francisco Bay Area coastal scrub may support the federal and California Threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), while Diegan sage scrub is recognized as primary habitat for the federal Threatened coastal California gnatcatcher (*Polioptila californica californica*).

Chaparral. Chaparral plant communities in the project area can be categorized as montane, mixed, or chamise-redshank chaparral habitat depending primarily on location and dominant species present in the community. Montane chaparral occurs between 3,000 to 9,000 feet in northern California and above 7,000 feet in southern California. Evergreen species such as chaparral whitethorn (*Ceanothus leucodermis*), huckleberry oak (*Quercus vaccinifolia*), greenleaf manzanita (*Arctostaphylos patula*), and mountain mahogany (*Cercocarpus betuloides*) characterize this plant community. Montane chaparral has a very limited distribution within the

project area, occurring only within a small portion of the San Francisco Bay Area and Los Angeles Basin regions. Both mixed chaparral and chamise-redshank chaparral are composed of dense shrubs 1 to 4 meters tall, which can overlap to produce greater than 80% canopy cover. Scrub oak (*Quercus berberidifolia*) and ceanothus and manzanita species dominate mixed chaparral habitat. In addition to chamise (*Adenostoma fasciculatum*) and redshank (*Adenostoma sparsifolium*) as dominant species, chamise-redshank chaparral can include species such as California buckwheat, poison oak, white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and toyon.

Chaparral habitat can provide dense vegetative cover for many common small mammals and reptiles, including brush rabbit, Botta's pocket gopher, deer mouse (*Peromyscus maniculatus*), California mouse *(Peromyscus californicus),* western fence lizard, western skink (*Eumeces skiltonianus*), and common kingsnake *(Lampropeltis getulus).* Common bird species that nest in chaparral habitat include lesser goldfinch *(Carduelis pasltria),* Anna's hummingbird (*Calypte anna),* California quail, wrentit *(Chamae fasciata),* bushtit, white-crowned and golden-crowned sparrow (*Zonotrichia atricapilla*), and western scrub jay. The following large mammal predators may prey upon small mammals and reptiles in chaparral habitat on the project site: coyote *(Canis latrans),* gray fox (*Urocyon cinereoargenteus),* and raccoon *(Procoyon lotor).*

Sensitive Plant Communities and Associated Wildlife Habitats

Perennial Grassland. In coastal regions of the project area within the Santa Cruz and San Francisco Bay Area regions, perennial coastal prairie grasslands are present. These grasslands are dominated by bunchgrasses from genera such as *Nassella* (needlegrasses), *Festuca* (fescues) and *Deschampsia* (oatgrasses). Where stands are intact or have been restored, they support most of the wildlife species associated with annual grasslands. Due to the structure of the grasses and their longer growing period, and other associated native plant species, perennial grassland is generally of higher quality than annual grassland.

Riparian Forest, Woodland, and Scrub. Riparian forest, woodland, and scrub habitat occurs along larger rivers and creeks throughout the project area. Typical riparian communities of the San Francisco Bay Area region may include various species of willows with alder (*Alnus* sp.) cottonwood (*Populus* sp.), California bay, coast live oak, ash and northern California black walnut (*Juglans californica* var. *hindsii*). Shrub species include California wildrose (*Rosa californica*) and California blackberry. Herbaceous vegetation may include sedges, grasses and aquatic species (discussed below in Freshwater Emergent Wetland). Central coast riparian scrub occurs from the San Francisco Bay Area south to Point Conception and is considered a significant plant community by CDFG (Holland, 1986). In the Fresno and Sacramento Metropolitan regions of the project area, Great Valley cottonwood riparian forest and mixed riparian forest may include species of willow, cottonwood, white alder, big-leaf maple, and valley oaks. Major river courses in the Los Angeles Basin, Riverside County, San Diego County, and Imperial County regions of the project area support various riparian communities with cottonwood, willow, coast live oak, white alder (*Alnus rhombifolia*), and sycamore (*Platanus* sp.) species. Young, dense stands of willow and mulefat (*Baccharis salicifolia*) scrub form the dominant plant species in southern

willow riparian scrub, which is closely associated with riparian forests and tends to dominate in areas more frequently disturbed by winter storm flows.

Riparian habitats support some of the most diverse wildlife communities in the project area. The diversity of plant species, multi-layered vegetation, and perennial water provides a variety of foods and microhabitat conditions for wildlife. Mature willows, oaks, sycamores, and other riparian trees provide high-quality nesting habitat for Cooper's hawk, sharp-shinned hawk, white-tailed kite and other raptors. Cavity-nesting wildlife, such as the Nuttall's woodpecker (*Picoides nuttallii*), downy woodpecker, northern flicker, white-breasted nuthatch (*Sitta carolinensis*), western gray squirrel and bat species require mature stands of trees. California grape vines (*Vitis californica*), blackberry, elderberry (*Sambucus* sp.), and oak produce important fall and winter foods for birds and mammals. Common wildlife species that depend on the nectar, fruits and seeds of riparian plants include Anna's hummingbird, black-headed grosbeak (*Pheuticus melanocephalus*), California towhee, raccoon (*Procyon lotor*), striped skunk, and gray fox.

Riparian vegetation supports an abundance of insect prey that feed on foliage and stems during the growing season. These insects, in turn, support a high density of migratory and resident birds, including the Pacific-slope flycatcher, western wood pewee (*Contopus sordidulus*), yellow warbler (*Dendroica petechia*), MacGillivray's warbler (*Oporornis tolmiei*), Wilson's warbler (*Wilsonia pusilla*), warbling vireo (*Vireo gilvus),* bushtit, and house wren (*Troglodytes aedon*). Oak foliage and bark attract insects that are important to the diet of birds such as white-breasted nuthatch, plain titmouse, Bewick's wren (*Thryomanes bewickii*), ruby-crowned kinglet, American robin, Hutton's vireos, warbling vireo, orange-crowned warbler, Nashville warbler (*Vermivora ruficapilla*), yellow-rumped warbler, black-throated gray warbler (*Dendroica negrescens*), western tanager (*Piranga ludoviciana*), black-headed grosbeak, fox sparrow (*Passerella iliaca*), and house finch. Woodpeckers excavate nestholes in live and dead oaks, and these cavities are subsequently used by other cavity-nesting species, such as American kestrel, western screech owl (*Otus kennicottii*), tree swallow (*Tachycineta bicolor*), ash-throated flycatcher (*Myiarchus cinerascens*), and western bluebird (*Sialia mexicana*). Oak acorns provide an important food source for many species including western scrub jay, western gray squirrel, and mule deer.

Freshwater Emergent Wetland[4]. Freshwater emergent wetland may occur in the project area where year-round, shallow, standing water is present. It is associated with the edges of canals, irrigation ditches, sloughs, some perennial drainages, and riverbanks. Emergent marshes are typically dominated by perennial emergent species, including cattail (*Typha* sp.), tule (*Scirpus* sp.), three-square (*Scirpus pungens*), and umbrella sedge (*Cyperus eragrostis*). Annual species, such as water smartweed (*Polygonum* sp.), duckweed (*Lemna* sp.), and annual rabbit's-foot grass (*Polypogon monspeliensis*), are also common in the emergent marsh. For the most part, this community does not occur in drainages that are channelized and concrete-lined.

[4] CNDDB identifies this sensitive community as coastal and valley freshwater marsh. This document will use the WHR habitat classification of freshwater emergent wetland.

The narrow band of emergent marsh vegetation along canals, ditches, and other drainages provides some nesting and foraging opportunities and cover for water bird species and small mammals, including mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), great egret (*Ardea alba*), marsh wren (*Cistothorus palustris*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), raccoon, and California vole (*Microtus californicus*). Emergent marshes are also important foraging grounds for several bat species.

Saline Emergent Wetland. Saline emergent wetland occurs in the lagoons and estuaries of the San Francisco Bay Area, Los Angeles Basin, and San Diego County regions of the project area. Because northern coastal salt marsh and southern coastal salt marsh are considered sensitive plant communities by the CNDDB, saline emergent wetland is classified as one of these two communities in the regional discussions below. In the project area, Malibu Lagoon and Ballona wetlands in Los Angeles County, Seal Beach marshes, Bolsa Chica Lagoon, and Upper Newport Bay in Orange County, and Mission Bay and San Diego Bay in San Diego County provide saline emergent wetland habitat. The dominant plants of this community possess features that allow them to live in saline soils and to absorb water despite its dissolved salts. The lower marsh vegetation is dominated by cord grass (*Spartina* sp.), while in the upper marsh, pickleweed (*Salicornia* sp.) is often the dominant species in association with alkali heath (*Frankenia salina*), sea-blite (*Suaeda linearis*), saltgrass (*Distichlis* sp.), fleshy jaumea (*Jaumea carnosa*), and others. California mainland and island coastal areas include some of the richest habitats for marine birds and mammals in North America. The ocean waters, lagoons, beaches, bays, estuaries, saltwater marshes, and tidal flats provide habitat for an abundance of seabirds, shorebirds, wading birds, and waterfowl. Typical birds of rocky coasts include double-crested and pelagic cormorants (*Phalacrocorax auritus* and *P. pelagicus*), black oystercatcher (*Haematopus bachmani*), black turnstone (*Arenaria malanocephala*), wandering tattler, and surfbird (*Aphriza virgata*). Sandy beaches experience heavy human use, but undisturbed areas attract marbled godwit (*Limosa fedoa*), sanderling (*Calidris alba*), and special-status species, such as western snowy plover (*Charadrius alexandrinus nivosus*) and California least tern (*Sterna antillarum browni*). Dry salt flats occur adjacent to San Diego Bay in the San Diego County region of the project area. This community is included in the saline emergent wetland habitat type due to its association with saline emergent wetland and its value as nesting habitat for western snowy plovers and California least terns.

Seasonal wetlands. Seasonal wetlands provide important foraging habitat for resident and migratory birds and supply an abundant invertebrate food source. In addition, the importance and sensitivity of wetlands have increased due to their value as recharge areas and filters for water supplies, and due to widespread filling and destruction of wetlands for urban and agricultural development. Most plant and animal species that have adapted to ephemeral wetlands are unique to these habitats and have highly specialized life cycles. Seasonal wetlands, including vernal pools, in the project area and special status plant and animals which may inhabit these areas are discussed below.

Aquatic Habitat. Creeks, streams, rivers, lakes, ponds, tidal sloughs, bays, and estuaries in the project area provide aquatic habitat for a wide variety of wildlife. Freshwater, brackish and saline

aquatic habitats are present in the project area. The Sacramento, San Joaquin, and American Rivers support fish species of the Sacramento blackfish-Sacramento perch association, which are typically adapted to warmer, flatter rivers with high turbidity and low oxygen. Species inhabiting these rivers include Sacramento blackfish (*Orthodon microlepidotus*), Sacramento perch (*Archoplites interruptus*), Sacramento splittail (*Pogonichthys macrolepidotus*), and prickly sculpin (*Cottus asper*). These fish species also occur within the San Francisco Bay and its tributaries. Brackish water creeks which drain to the San Francisco Bay may support bat ray (*Myliobatis californica*), Pacific staghorn sculpin (*Leptocottus armatus*), shiner surfperch (*Cymatogaster aggregata*), longfin smelt (*Spirinchus thaleichthys*), bay pipefish (*Syngnathus leptorhynchus*), and the introduced yellowfin goby (*Acanthogobius flavimanus*) and striped bass (*Morone saxatilis*). Lakes and ponds in the San Francisco Bay Area region also are relatively abundant, and provide varying degrees of aquatic habitat depending on size and condition. Aquatic habitat within the project area in the Southern California regions is limited. Channelization of waterways for flood control management has eliminated the majority of aquatic habitat or reduced it to a very low habitat value throughout the project area.

Special-Status Plant Species

For the purpose of this environmental assessment, the term special-status plants is defined as species that are:

- listed or proposed for listing as Threatened or Endangered under the federal Endangered Species Act (federal ESA) (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species);
- federal Candidates for listing as Threatened or Endangered under the federal ESA (58 FR 188: 51144-51190, September 30, 1993);
- federal Species of Concern or California Species of Special Concern;
- listed by the State of California as Threatened or Endangered under the California Endangered Species Act (CESA) (14 CCR 670.5);
- plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900 et seq.); and
- plants considered by CNPS to be “rare, Threatened, or Endangered in California” (generally species from Lists 1B and 2; selected List 3 and 4 species are identified in Skinner and Pavlik 1994).

Special status plant species with potential to occur within each project region were identified (see **Table 4.4-2**[5]). Although there is a certain amount of overlap, with some species occurring in

[5] Plant and wildlife species totals for this document were compiled from searches of the CNDDB and the CNPS Electronic Inventory for the project area and from USFWS lists of species potentially affected by the project. As of June 2002, ESA had received species lists from the USFWS for all project area regions except Santa Cruz. The species totals are approximate for this region and will be finalized after USFWS species lists are received.

more than one region, the number of special status plant species for the project area as a whole is quite large. Documented occurrences of these species typically are located in areas of natural vegetation and open space within the otherwise highly urbanized areas. Many occurrences documented within the urbanized portions are either historic (*i.e.*, documented prior to extensive urbanization) and therefore mapped as large, unspecific areas of potential occurrence, or are since extirpated by prior development. Several species may occupy natural habitat adjacent to the proposed subsequent activity, but would not be subject to direct affects of construction. **Table 4.4-2** below provides an overview, by region, of sensitive species and habitats; Appendix E summarizes special status plants and their habitats, by county, in each project area region.

TABLE 4.4-2
SEMPRA COMMUNICATIONS PROJECT AREA REGIONS AND POTENTIAL SENSITIVE SPECIES

	Federal or State Listed, Rare, or Candidate Species		Federal or State Other Special Status Species	
Region	**Plants**	**Animals**	**Plants**	**Animals**
Sacramento Metropolitan	7	22	16	50
San Francisco Bay Area	44	45	137	117
Santa Cruz	17	18	26	13
Fresno	5	17	7	46
Los Angeles Basin	25	28	59	42
San Bernardino	19	23	32	24
Riverside County	18	24	31	27
San Diego	27	25	74	44
Imperial	1	4	6	6

Critical Habitat for Listed Plant Species

USFWS-designated critical habitat[6] for the following plant species is located within the project area: Antioch Dunes evening primrose and Contra Costa wallflower. In addition, the USFWS has proposed critical habitat for Otay tarplant, Santa Cruz tarplant, and robust spineflower within the project area. The Existing Conditions sections below identify USFWS-designated critical habitat within each region of the project area.

WILDLIFE RESOURCES

The goal of the wildlife resource assessment was to obtain sufficient information to adequately assess the potential effects of subsequent activities on wildlife resources. ESA obtained and

6 Critical habitat is discussed in Regulatory Setting below.

reviewed existing information on wildlife resources known to be present in the proposed project area to determine the location and types of wildlife resources that occur in each region of the project area. Documents reviewed include local resource management plans, Environmental Impact Reports, conservation plans (*e.g.*, the San Diego Multiple Species Conservation Plan [MSCP]), and other environmental documents prepared for projects in the study area. Information on species occurrences was also gathered from statewide databases through contacts with the Natural Heritage Division and Nongame and Endangered Wildlife Section of CDFG. Contacts were made with resource specialists from the CDFG and USFWS to gather file information on wildlife resources in the project area, including mapped and database information. Contacts were made by telephone and written correspondence.

Lists of all special-status wildlife species potentially occurring in the project area, along with their legal status, distribution, and habitat association, are provided in Appendix E. In this document, the term special-status wildlife includes species that are:

- listed or proposed for listing as Threatened or Endangered under the federal ESA (50 CFR 17.11 [listed animals] and various notices in the Federal Register for proposed species);
- federal Candidates for listing as Threatened or Endangered under the federal ESA (58 FR 188: 51144-51190, September 30, 1993);
- federal Species of Concern or California Species of Special Concern;
- listed by the state of California as Threatened or Endangered under CESA (14 CCR 670.5), and;
- fully protected animals in California (Cal. Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians].

Special status wildlife species with potential to occur within each project region were identified (see Table 4.4-2). As with plants, there is a certain amount of overlap, with some wildlife species occurring in more than one region and others occurring throughout the project area. However, the total number of wildlife species addressed in this document is quite large. Even if subsequent activities are proposed within urbanized areas and previously disturbed rights of way, a potential exists for construction activities to affect special status wildlife species. Species within habitats adjacent to developed areas and not directly affected by installation of fiber optic cable facilities could potentially be indirectly affected by construction noise and activity, and are therefore included in the following summaries of existing conditions. Appendix E identifies, by county, sensitive wildlife species that may occur within the project area.

Critical Habitat for Listed Wildlife Species

USFWS-designated critical habitat for the following wildlife species is located within the project area: Riverside fairy shrimp, delta smelt, valley elderberry longhorn beetle, California red-legged frog, Alameda whipsnake, Palos Verdes blue butterfly, bay checkerspot butterfly, arroyo southwestern toad, and Quino checkerspot butterfly. Critical habitat designated by the National Marine Fisheries Service (NMFS) and National Oceanic and Atmospheric Administration (NOAA) for Sacramento River winter run chinook salmon is located within the project area. In

addition, areas proposed for designation as critical habitat for the San Bernardino kangaroo rat occur within the project area. Areas previously designated by the USFWS as critical habitat for coastal California gnatcatcher, San Diego fairy shrimp, Central Valley chinook salmon (spring run) [7] and southern California steelhead also occur within the project area[8]. The Existing Conditions sections below identify USFWS-designated critical habitat within each region.

WATERS OF THE UNITED STATES (INCLUDING WETLANDS)

For the purpose of this document, the term "waters of the United States" is an encompassing term used by the U.S. Army Corps of Engineers (Corps) for areas that would qualify for federal regulation under Section 404 of the Clean Water Act. Waters of the United States are separated into wetlands and other waters of the United States.

Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 Code of Federal Regulations [CFR] 328.3[b], 40 CFR 230.3). To meet the Corps' criteria as a Section 404 wetland, a site must be subject to hydrological conditions that result in inundated or saturated soils, and that support vegetation that is adapted to such conditions.

"Other waters of the United States" are sites that typically lack one or more of the three indicators identified above (wetland hydrology, vegetation, or soils). Other waters of the United States that may occur in the project area include drainages and seasonal wetlands that form in shallow, disturbed depressions in ruderal habitat. For the purpose of this document, drainages include all streams, creeks, rivers, and other surface features with defined beds and banks.

Major waters of the United States are discussed below in the regional discussions of aquatic habitat. In addition to these major rivers and streams, numerous wetlands and other waters of the United States subject to Corps jurisdiction are present within the project area and may affected by subsequent activities. Wetland habitats in the project area include freshwater emergent wetland, saline emergent wetland, seasonal wetlands, and vernal pools. For subsequent activities to this Program EIR, Sempra Communications will identify all potentially jurisdictional features in the vicinity of proposed construction operations, and include those details in the work plan submitted to the CPUC prior to construction. Measures outlined in this document to avoid or minimize impacts to wetlands and other waters of the United States will apply to all jurisdictional features identified in work plans proposed by Sempra Communications.

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7 Critical habitat for Central Valley chinook salmon (spring run) and Southern California steelhead was designated by the National Marine Fisheries Service (NMFS) and National Oceanic and Atmospheric Administration (NOAA).

8 On February 25, 2002 the 10th Circuit Court of Appeals in Los Angeles voided USFWS-designated critical habitat for the California gnatcatcher and San Diego fairy shrimp. The action was in response to a Bush administration request for reevaluation of critical habitat under the claim that USFWS had not done an adequate assessment of the economic impacts of critical habitat designation. On March 11, 2002, the Bush administration proposed to withdraw critical habitat designations for 19 species of threatened and endangered salmon and steelhead in California, Oregon, Washington and Idaho.

4.4.3 EXISTING CONDITIONS FOR THE SACRAMENTO METROPOLITAN REGION

REGIONAL SETTING

The Sacramento metropolitan region is located within the Great Valley ecological subregion (Miles and Goudey, 1998). This region of the project area encompasses the entirety of the City of Sacramento, as well as surrounding County-incorporated communities with moderate population density. Based on habitat mapping, the majority of this region of the project area consists of urban landscaping, agricultural, and annual grassland habitats. Biological resources in the Sacramento metropolitan region are predominantly associated with large tracts of undeveloped and uncultivated lands, which are typically non-native grasslands used for gazing. These areas also support oak woodlands, perennial grasslands, remnant alkali grasslands, and vernal pools and other seasonal wetlands with relatively high potential to support special status plant and wildlife species. Rivers, streams, lakes and ponds support a variety of other wetland habitats, including riparian forest, wetland and scrub, freshwater marsh, and also riverine and palustrine habitats.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities in the Sacramento Metropolitan region of the project area include annual grassland, ruderal habitats, urban landscaping, agricultural habitats, and oak woodlands as described in Section 4.4.2. These common communities are the most likely to be encountered by project construction activities due to project design along paved routes or other previously disturbed rights of way.

Sensitive Plant Communities and Associated Wildlife Habitats

Vernal Pools

Vernal pools in the Sacramento Valley are considered sensitive habitats because of the special status species they support and because of the significant reduction of this habitat type due to agricultural and urban development. Representative plants species found in vernal pool habitats include popcorn flower, spikerush, coyote thistle, goldfields, tri-color monkey flower, and California hairgrass. Special status species that occur exclusively in vernal pool habitats and which may occur in vernal pools in the Sacramento project region include vernal pool fairy shrimp, vernal pool tadpole shrimp, conservancy fairy shrimp, Boggs Lake hedge-hyssop, and Sacramento orcutt grass. Although vernal pools occur naturally in grassland and woodland settings, they can also occupy disturbed locations where underlying soil conditions remain intact. For example, railroad rights of way and other disturbed locations do support seasonal wetlands with plant and invertebrate populations characteristic of vernal pools.

Great Valley Cottonwood Riparian Forest

Great Valley cottonwood riparian forest and riparian scrub communities are associated with major rivers and creeks in the Sacramento metropolitan region, including the Sacramento River, American River, Cosumnes River, and other large perennial creeks. Some riparian habitats in this region have been highly disturbed in some instances by farming, and residential and commercial development. Both Great Valley cottonwood riparian forest and riparian scrub communities provide habitat for various passerines, waterbirds and amphibians and provide a source of water and movement corridor for many wildlife species. Species that typically occupy this habitat include black-crowned night-heron, green-backed heron, great blue heron, belted kingfisher, and river otter. Riparian forests also function as foraging and breeding habitat for special status raptors such as Cooper's hawk, sharp-shinned hawk, white-tailed kite. Riparian forests along permanent waterways with a more or less continuous canopy of trees near grassland, irrigated pasture, alfalfa or grain fields provide high quality habitat for the state Threatened Swainson's hawk.

Aquatic Habitat/Freshwater Emergent Wetland

The Sacramento and American Rivers and larger perennial creeks and streams provide aquatic habitat that supports fisheries. Several special-status fish species are known to occupy the Sacramento and American River drainages and major tributaries, including steelhead trout, chinook salmon, delta smelt, and Sacramento splittail. These drainages also provide potential habitat for green sturgeon, river lamprey, Pacific lamprey, and longfin smelt. Moderate to good quality habitat that supports native fisheries, including salmonids (trout and salmon) is typically attributed to streams that retain the following habitat elements: runs and deep pools; natural bed material suitable for spawning, and overall diversity of grain size from silt to boulders; in-channel cover from predators, such as large boulders, root wads, and overhanging banks; natural bank configuration, including an unconstrained floodplain; and intact riparian canopy that provides shade over a substantial portion of most reaches. Special status species which may inhabit drainages or adjacent freshwater emergent wetland habitat in the Sacramento metropolitan area region include California red-legged frog, northwestern pond turtle, giant garter snake, and tricolored blackbird.

Special Status Plants

A total of 23 special-status plant species were identified with potential to occur in the Sacramento Metropolitan region (see Appendix E). Of these species, 7 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the Sacramento Metropolitan region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species. Potential habitat for special status plants may be located in low-density residential and agricultural areas (i.e., grazing) which would have a low likelihood of being directly or indirectly affected by specific projects. Vernal pools and other seasonal wetlands could occur in public utility rights of way in the project region.

These wetlands have the potential to support Boggs lake hedge-hyssop, slender orcutt grass, Sacramento orcutt grass.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this project area region is described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special Status Wildlife

A total of 72 special status wildlife species were identified in the Sacramento Metropolitan region (see Appendix E). Of these, 22 are listed Threatened or Endangered species or candidate species for listing. Based on field studies for other fiber optic network projects in the Sacramento Metropolitan region (see references in Section 4.4.1), the following species were determined to be most likely to occur in habitats within or adjacent to alignments typical of fiber optic network projects in the project area: Valley elderberry longhorn beetle, conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Swainson's hawk, California red-legged frog, western spadefoot, Cooper's hawk, sharp-shinned hawk, tricolored blackbird, loggerhead shrike, burrowing owl, and white-tailed kite. Crossings of streams and rivers could have potential effects on delta smelt, Central Valley steelhead, Winter run chinook salmon, Central Valley fall/late fall-run chinook salmon, Central Valley spring run chinook salmon, Sacramento splittail, green sturgeon, river lamprey, Pacific lamprey, longfin smelt, northwestern pond turtle, and giant garter snake. Mammal species of concern to the project are limited to bats, predominantly of the genus *Myotis*, which may establish roosts under bridges and in abandoned buildings in otherwise ruderal or urban habitats near woodlands or in close association with water bodies. All bat species are Species of Special Concern in California.

Critical Habitat for Listed Wildlife Species

USFWS-designated critical habitat for the delta smelt and valley elderberry longhorn beetle is located within the Sacramento Metropolitan region of the project area. Areas designated as critical habitat for Central Valley winter run chinook salmon and areas previously designated as critical habitat for Central Valley spring run chinook salmon are also located within this region of the project area.

The **delta smelt** spends a large portion of the year in brackish water and estuarine habitats in Suisun Bay and the Sacramento-San Joaquin River Delta. This species is tolerant of a wide salinity range and has been observed in water up to 14 grams per liter salinity. Spawning occurs between December and August in shallow, fresh water in river channels and tidally-influenced backwater sloughs. Eggs are attached to emergent or submerged vegetation such as cattails, tules and tree roots. Loss of estuarine habitat as well as modification of water flow in Delta tributaries has contributed to the decline of this species.

The **valley elderberry longhorn beetle** occurs throughout the Central Valley in association with elderberry trees in riparian habitats. Adults forage on the elderberry trees until June when mating begins and the females lay their eggs in bark crevices. Once the larvae hatch, they bore into stems 1.0 inch or greater and spend the next 1-2 years foraging on the interior wood. Adults emerge during the spring. Agricultural, commercial, and residential development in the Central Valley has resulted in the removal of native riparian habitat which once supported elderberry trees and the valley elderberry longhorn beetle.

Chinook salmon spend the majority of their lives in marine waters from their birth until adulthood. They migrate from the ocean to freshwater rivers and streams of their birth to spawn. Females lay their eggs in gravelly streams and adult chinook salmon die within a month of spawning. Juvenile chinook migrate to estuarine waters within two years of birth. Subsequently, they travel to the ocean to forage and mature.

4.4.4 EXISTING CONDITIONS FOR SAN FRANCISCO BAY AREA REGION

REGIONAL SETTING

The San Francisco Bay Area region the project area coincides with the most densely populated areas, as shown on project area maps in **Figures 3-2** through **3-7** in Chapter 3. This area consists primarily of urban, residential, industrial and commercial and developed areas, but also includes undeveloped areas with natural vegetation and habitat value that exist as patches within or at the edges of urbanization, and habitat areas along the San Francisco Bay shoreline.

The project area also includes the San Francisco Bay and numerous rivers and creeks that feed into it, originally a complex of salt and freshwater wetlands and associated uplands. A high plant and animal species diversity and high degree of endemism of plants and animals—several butterfly species occur only in the Bay Area—are notable attributes.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities in the San Francisco Bay Area region include urban landscaping, annual grassland, chaparral, coastal scrub, agricultural, eucalyptus woodland, and ruderal habitats as described in Section 4.4.2. Some grasslands on the San Francisco peninsula and in the Santa Clara Valley may contain small areas of serpentine grasslands, which are described in the sensitive plant communities section below.

Sensitive Plant Communities and Associated Wildlife Habitats

Serpentine Grassland

Serpentine grasslands are derived from thinly-soiled and rocky ultramafic (serpentine) substrate and are simultaneously high in magnesium and low in calcium. Although these areas support species common in nonserpentine grasslands, some plant species occur only in serpentine areas. Common plant species in serpentine grassland include wild oats, purple needlegrass, goldfields, California poppy and dwarf plantain. Special status species occurring in the serpentine grassland include Setchell's dudleya, uncommon jewelflower and the larval food plants of the federally Threatened Bay checkerspot butterfly (dwarf plantain and owl's clover) and Oplers longhorn moth (cream cups).

Mesic Serpentine Chaparral/Central Maritime Chaparral

Mesic serpentine chaparral occurs on shallow, stony, infertile serpentine soils in central and northern California. Serpentine outcrops in the San Francisco Bay Area region of the project area may support this community. Mesic serpentine chaparral is classified as a sensitive plant community by CNDDB because of the special status plant species which it may include. Chamise chaparral and toyon are the dominant species in mesic serpentine chaparral. Associate species include the following: Coyote ceanothus (*Ceanothus ferrisae*), dwarf ceanothus (*Ceanothus pumilus*), leather oak (*Quercus durata*), Congdon’s silk tassel (*Garrya congdonii*), and California juniper (*Juniperus californica*). Central maritime chaparral communities occur in well-drained, sandy soils and are dominated by wooly-leaf manzanita and chamise. Associate species include coffeeberry, redberry, manzanita (*Arctostaphylos* sp.), and ceanothus (*Ceanothus* sp.). Wildlife habitat provided by mesic serpentine chaparral and central maritime chaparral is similar to that of other communities within the chaparral habitat type as described in Section 4.4.2 above.

Upland Douglas Fir Forest

Upland Douglas fir forests occur in the Coast Ranges in deep, well-drained soils. Douglas fir is the dominant species in this community with the following associate species: salal (*Gaultheria shallon*), oceanspray (*Holodiscus discolor*), and western hemlock (*Tsuga* sp.). Wildlife species potentially occurring in upland Douglas fir forest in the project area include golden-crowned kinglet, red-tailed hawk, sharp-shinned hawk, ensatina, deer mouse, dusky-footed woodrat, and shrew-mole.

Monterey Pine Forest

Monterey pine is the dominant species in Monterey pine forest communities followed by coast live oak. Associate species include poison oak, coyote brush, woolly-leaf manzanita (*Arctostaphylos tomentosa*), California bedstraw (*Galium californicum*), and toyon. This community naturally occurs on sandy soils in coastal areas in the vicinity of the Monterey Peninsula. Monterey pine occurs in a much larger area as an ornamental landscaping species.

Raptors such as red-tailed hawk and great horned owl may nest in Monterey pine trees within the project area.

Valley Oak Woodland

Valley oak woodland occurs within the project area in Santa Clara County. CNDDB considers this plant community sensitive. The tree component of this community is usually dominated soley by valley oak in open stands with a grassy understory. Canopy cover rarely exceeds 30%–40%. As described in Section 4.4.2, valley oak woodlands may support various amphibian and reptile species, resident and migratory bird species, and nesting raptors such as red-tailed hawk, Cooper's hawk, sharp-shinned hawk, and white-tailed kite.

California Bay Forest

California bay forest is similar in structure to mixed evergreen forest, but with California bay as the only species. This community is usually dense with little or no understory and occurs on moist slopes. Some species which may be present within California bay forest include wooly-leaf manzanita, California blackberry (*Rubus ursinus*), and snowberry (*Symphoricarpus alba*). California bay forests may provide foraging habitat for mule deer, California ground squirrel, dusky-footed woodrat, acorn woodpecker, and western scrub jay. Western rattlesnake, western fence lizard, and Pacific slender salamander may inhabit California bay forests as well.

Northern Coastal Salt Marsh

Northern coastal salt marsh occurs in the San Francisco Bay Area region in association with the Bay itself and tributary drainages and tidal sloughs. These wetlands and adjacent areas are important feeding and resting areas for migrating waterfowl, and under the right conditions can provide habitat for the following special status species: western snowy plover, California least tern, California clapper rail, California black rail, and salt marsh harvest mouse.

Riparian Forest, Woodland and Scrub

San Mateo Creek (San Mateo), San Francisquito Creek (Palo Alto), Los Gatos Creek (San Jose), Guadalupe River (San Jose), Coyote Creek (San Jose) and other larger rivers and creeks in the San Francisco Bay Area region support riparian forest, woodland, and scrub communities. Riparian communities provide habitat for numerous common amphibians, reptiles, mammals, and birds. In addition, large trees within these communities provide potential foraging and nesting habitat for a variety of special status species such as Cooper's hawk, sharp-shinned hawk, and white-tailed kite.

Aquatic Habitat/Freshwater Emergent Wetland

Numerous perennial, intermittent and ephemeral drainages enter San Francisco Bay, and most retain aquatic habitat values in at least some reaches. Special-status fish species that occupy San Francisco Bay could also inhabit at least the lower reaches of some drainages. Streams that provide moderate to high quality freshwater aquatic habitat and support common and potentially

sensitive fisheries resources include: Corte Madera Creek (Corte Madera), Colma Creek (South San Francisco), San Francisquito Creek (Palo Alto), Los Gatos Creek (San Jose), Guadalupe River (San Jose), Coyote Creek (San Jose), Alameda Creek (Fremont); Wildcat Creek (Richmond), Rodeo Creek (Rodeo), Walnut Creek (Martinez), among others. Brackish water creeks such as San Lorenzo Creek (San Leandro), Lake Merritt inlet (Oakland), and Colma Creek (San Francisco) typify channelized tidal streams, with steep, narrow banks, bank armoring (*i.e.*, riprap), and non-native vegetation lacking a developed riparian canopy. Special status species potentially occurring in drainages within the San Francisco Bay Area region include steelhead, chinook salmon, and Pacific lamprey. California red-legged frog, and San Francisco garter snake may occur in these drainages and adjacent streamside habitats. Freshwater emergent wetlands provide nesting habitat for tricolored blackbird. Lakes and ponds in this region also are relatively abundant, and provide varying degrees of aquatic habitat depending on size and condition.

Special-Status Plants

A total of 181 special-status plant species were identified with potential to occur in the proposed San Francisco Bay Area region (see Appendix E). Of these species, 44 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the San Francisco Bay Area region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species.

Critical Habitat for Listed Plant Species

USFWS-designated critical habitat for the Antioch Dunes evening primrose and Contra Costa wallflower is located within the San Francisco Bay Area region of the project area. The USFWS has proposed critical habitat for Santa Cruz tarplant within the San Francisco Bay Area region.

The federal and California Endangered **Antioch Dunes evening primrose** (*Oenothera deltoides* var. *howellii*) and **Contra Costa wallflower** (*Erysimum capitatum* var. *angustatum*) occur along the San Joaquin River in the Antioch Dunes of Contra Costa County. The majority of the original sand and stabilized-dune habitat at the Antioch Dunes has been reduced by various types of industrial and agricultural development. The remaining area which supports these two plant species is protected as part of the San Francisco Bay National Wildlife Refuge.

The **Santa Cruz tarplant** (*Holocarpha macradenia)* is a federal Threatened and California Endangered species. It is found on clay and clay loam soils near the coast, in areas with summer fog. It is reported as occurring on hard-packed soil, sometimes in disturbed sites, and on coastal prairie and annual grasslands. The historic range of Santa Cruz tarplant is from Marin and Contra Costa counties southward to Monterey County. It is now presumed extirpated from Marin and Alameda counties, and remains in Contra Costa County only as an introduced population on East Bay Regional Park lands.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area is described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 117 special status wildlife species were identified in the San Francisco Bay Area region (see Appendix E). Of these, 45 are listed Threatened or Endangered species or candidate species for listing. Based on field studies for other fiber optic network projects in the San Francisco Bay Area (see references in Section 4.4.1), the following species were determined to be most likely to occur in habitats within or adjacent to alignments typical of fiber optic network projects in the project area: California red-legged frog, Alameda whipsnake, San Francisco garter snake, western pond turtle, tricolored blackbird, loggerhead shrike, burrowing owl, Cooper's hawk, sharp-shinned hawk, and white-tailed kite. As mentioned above, small relict areas of serpentine grasslands on the Peninsula and in the Santa Clara Valley support several highly endangered butterfly species. Streams and rivers in the project area could support steelhead, chinook salmon, and Pacific lamprey. Tidal marsh areas, even when adjacent to highly urbanized sites, can support western snowy plover, California least tern, California clapper rail and California black rail (rails susceptible to disturbances several hundred feet away during nesting season), and the salt marsh harvest mouse. Other mammal species of concern to the project are limited to bats, predominantly of the genus *Myotis*, which may establish roosts under bridges and in abandoned buildings in otherwise ruderal or urban areas. All of the bats are Species of Special Concern in California.

Critical Habitat for Listed Wildlife Species

USFWS-designated critical habitat for the Alameda whipsnake, the California red-legged frog, the bay checkerspot butterfly, and the delta smelt is located within the San Francisco Bay Area region of the project area. Areas designated as critical habitat for Central Valley winter run chinook salmon and areas previously designated as critical habitat for Central Valley spring run chinook salmon are also located within this region of the project area. Chinook salmon and Delta smelt are discussed in Critical Habitat in Section 4.4.3.

The **Alameda whipsnake** (*Mastocophis lateralis euryxanthus*) is a California and federal Threatened species that inhabits primarily chaparral, Diablan sage scrub, northern coyote brush scrub, and riparian scrub communities. Within their home ranges, whipsnakes maintain "core areas" or areas of concentrated use that consist of open to partially open scrub communities on east-, southeast-, south-, or southwest-facing slopes (Swaim, 1994). Rock outcrops and talus are important features of these core areas. Whipsnakes may utilize various habitats immediately adjacent to their core areas, including oak woodland/savanna and grassland areas (Swaim, 1994). Prey items of the whipsnake include western fence lizard *(Sceloporus occidentalis)* as well as western skink *(Eumaces skiltonianus)*, southern alligator lizard *(Gerrhonotus multicarinatus)*, and Gilbert skink *(Eumaces gilberti)* (Larsen et al., 1991).

The **California red-legged frog** (*Rana aurora draytonii*), a federal Threatened species and California Species of Special Concern, is chiefly a pond frog that can be found in quiet permanent waters of ponds, pools, streams, springs, marshes, and lakes. Moist woodlands, forest clearings, and grasslands also provide suitable upland habitat for this species in the non-breeding season (Stebbins, 1985). Adult frogs seek waters with dense vegetation, such as cattails, along the shore for cover, but may be found in unvegetated waters as well. Red-legged frogs are active year-round along the coast but will aestivate from late summer to early winter inland. Adults consume insects such as beetles, caterpillars and isopods, while tadpoles forage on algae and detritus.

Serpentine bunchgrass grassland which supports plantain (*Plantago erecta*), provides habitat for the federal Threatened **bay checkerspot butterfly (***Euphydryas editha bayensis*). Females lay their eggs on the plantain and the larvae feed on this species. Larvae may also feed on two species of owl's clover (*Castilleja densiflorus* or *C. exserta*), which tend to provide food resources for the larvae after plantain has dried up. Usually larvae enter dormancy after summer and pupate at the end of winter, after feeding on new plant growth.

4.4.5 EXISTING CONDITIONS FOR SANTA CRUZ REGION

REGIONAL SETTING

The Santa Cruz region is a mosaic of upland oak, mixed evergreen, and redwood forests, native and non-native grasslands, upland scrubs, wetland communities, and riparian scrubs and forests. This region is near the regional separation between the Bay Area-Delta and South-Central Coast Bioregions (Miles and Goudey, 1998). This position places Santa Cruz within the range of several species common to either bioregion. In addition, proximity of the coastal mountains has partially isolated the area, resulting in the evolution of several species restricted to this area alone. The phenomenon has been noted by natural scientists for some time: one of the earliest animals to receive endangered species status was the highly localized Santa Cruz long-toed salamander listed under the precursor to the Endangered Species Act in 1967. The Santa Cruz region also includes the City of Watsonville which is located within the Pajaro Valley, a wide plain between the Coast Ranges and Monterey Bay. Deep, alluvial soils along the floodplain of the Pajaro River support vineyards of grapes and orchards of apples, stone fruits and walnuts, and a variety of row crops in this agricultural area.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities in the Santa Cruz region of the project area include urban landscaping, grassland, chaparral, coastal scrub, mixed evergreen forest and oak woodland habitats as described in Section 4.4.2. A significant portion of non-urbanized Watsonville supports intensive agriculture.

Sensitive Plant Communities and Associated Wildlife Habitats

Riparian Forest, Woodland and Scrub

Central coast riparian scrub occurs most often as a dense, broadleafed, winter-deciduous thicket of arroyo willow. This community typically occurs in areas of fine-grained sand and gravel with shallow groundwater. Central coast riparian scrub is distributed along and at the mouths of most perennial and many intermittent streams of the South coast Ranges from the Bay Area south to Point Conception (Holland, 1986) and is likely limited within the Santa Cruz region of the project area. Riparian habitat associated with the San Lorenzo and Pajaro Rivers may support yellow-breasted chat and yellow warbler, both special status species.

Aquatic Habitat

The San Lorenzo and Pajaro Rivers, Salispuedes Creek and some of their tributaries provide perennial aquatic habitat in the Santa Cruz region and support steelhead and other fishes. Numerous smaller drainages provide seasonal aquatic habitat for species such as Pacific chorus frog and common garter snake. Sandy banks along the Pajaro River provide breeding habitat for western pond turtles. Some reaches of the Pajaro River may support California red-legged frog, though much of the river is too swift to provide breeding habitat. This species is also known to occur in various streams and tributaries in the region.

Special-Status Plants

A total of 43 special-status plant species were identified with potential to occur in the Santa Cruz region (see Appendix E). Of these, 17 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the Santa Cruz region of the project area consists of agricultural, commercial, industrial and residential developments with no habitat for special status plant species.

Critical Habitat for Listed Plant Species

The USFWS has proposed critical habitat for Santa Cruz tarplant and robust spineflower within the Santa Cruz region of the project area. Santa Cruz tarplant is described in Critical Habitat in Section 4.4.4 above.

The **robust spineflower** (*Chorizanthe robusta* var. *robusta*) is a federal Endangered species. It occurs in sandy or gravelly soils in coastal scrub, coastal dunes, and in openings in oak woodland (Skinner and Pavlik, 1994). It is reported in some CNDDB records as occurring in sandy soils in coastal scrub and chaparral, but also in more sheltered sites. It grows best on lightly disturbed patches where grass competition is relatively low. It is also reported on the edge of sandy bluffs and terraces. It has been reported growing in association with typical coastal scrub species such as *Eriophyllum staechadifolium, Artemisia pycnocephala, Gnaphalium bicolor, Ericameria ericoides, Baccharis pilularis*, and the federally-listed *Gilia tenuiflora* ssp. *arenaria* (CNDDB, 2002). It also is noted as occurring in close association with some weedy species found in sandy

soils: iceplant (*Carprobrotus* sp.) and pampas grass (*Cortaderia* sp.). This species once ranged from Alameda to Monterey counties, but is currently known only along and adjacent to the coast of southern Santa Cruz and northern Monterey counties.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area is described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 43 special status wildlife species were identified in the Santa Cruz region (see Appendix E). Of these, 17 are listed as Threatened or Endangered species or candidate species for listing. Special status species with potential to occur in habitats within the Santa Cruz region of the project area include California red-legged frog and California tiger salamander. Red-legged frogs are well-distributed along many streams in Santa Cruz County; tiger salamanders are known to be present at Ellicott Pond (four miles northwest of Watsonville); near Moss Landing, adjacent to Elkhorn Slough and at several other localities. Santa Cruz long-toed salamanders breed in suitable wet meadow habitat at low elevations within the region. Both salamanders and red-legged frogs are known to travel up to a mile from their breeding ponds. The San Lorenzo and Pajaro Rivers support populations of the federal Threatened steelhead and provide potential habitat for yellow warbler and yellow-breasted chat.

The Ohlone tiger beetle may inhabit sunny areas of bare or sparsely vegetated ground in coastal terrace grassland habitat within the project area. The tidewater goby is found in the Pajaro Lagoon and the three-toed salamander in sloughs near Moss Landing, though subsequent activities are not likely to be located in the vicinity of habitat for these species.

Critical Habitat for Listed Wildlife Species

USFWS-designated critical habitat for California red-legged frog is located within the Santa Cruz region of the project area. California red-legged frog ecology is discussed in Critical Habitat in Section 4.4.4.

4.4.6 EXISTING CONDITIONS FOR FRESNO REGION

REGIONAL SETTING

The Fresno region is located within the San Joaquin Valley, a highly agricultural and urbanized area. Over 95% of the Valley floor has been cultivated or developed for agricultural, urban, or industrial uses (USFWS, 1998). Despite this development, the extremely arid climate and the vernal pool and wetland habitat which this region supports have resulted in a high degree of

endemism in species which occur within grasslands, scrublands, vernal pools, and other seasonal wetlands this area.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities in the Fresno region of the project area include urban landscaping, ruderal, agricultural, and oak woodland habitats with agricultural and urban landscaping being the dominant land uses in the project region (see Section 4.4.2 for plant community and associated wildlife habitat descriptions).

Sensitive Plant Communities and Associated Wildlife Habitats

Great Valley Cottonwood/Great Valley Mixed Riparian Forest

Great Valley cottonwood riparian forest and Great Valley mixed riparian forest along the San Joaquin River and some smaller drainages comprise riparian habitat in the Fresno region. Dominant species in these forests include cottonwood, California sycamore, and valley oak. Associate understory species include wild rose, California blackberry and poison oak. Riparian habitat may support various passerines, amphibians, reptiles, and nesting raptors as described in Section 4.4.2.

Aquatic Habitat

In the Fresno region, the San Joaquin River provides perennial aquatic habitat and may support steelhead as well as various species of common fish. Other streams and drainages, such as Dry Creek, and urban canals provide seasonal aquatic habitat for common amphibians and reptiles.

Special-Status Plants

A total of 12 special-status plant species were identified with potential to occur in the proposed Fresno region (see Appendix E). Of these, 5 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the Fresno region of the project area consists of agricultural, commercial, industrial and residential developments with no habitat for special status plant species.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area were described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 63 special status wildlife species were identified in the Fresno region (see Appendix E). Of these, 17 are listed Threatened or Endangered species. Special status species with potential to occur in habitats within within Fresno region of the project area include: raptors, San Joaquin kit fox; blunt-nosed leopard lizard; and Fresno, giant and Tipton kangaroo rats. Oak woodland and riparian forest habitat in the Fresno region may support nesting raptors, including Cooper's hawk, sharp-shinned hawk, and white-tailed kite, and other special status nesting birds. The San Joaquin kit fox inhabits grasslands and scrublands, as well as uncultivated land within or around the edges of orchards and vineyards in agricultural areas. This species is also known to occur in areas near the urban interface. Kangaroo rats forage for seeds in grasslands or shrublands. Abandoned kangaroo rat burrows provide blunt-nosed leopard lizards with protection from predators and extreme temperatures.

4.4.7 EXISTING CONDITIONS FOR LOS ANGELES BASIN REGION

This Los Angeles Basin region of the project area consists of the Los Angeles plain and the San Fernando Valley within Los Angeles County and Orange County. The Los Angeles plain, which is the largest part of the subsection is south of the Santa Monica and San Gabriel Mountains and west of the San Jose and the Puente Hills. The climate is hot and sub-humid; it is modified by marine influence greatly on the Los Angeles Plain and moderately in the San Fernando Valley.

The majority of the region is densely urbanized, which substantially limits the amount of natural habitat supporting sensitive biological resources that could be affected by subsequent activities in this region of the project area. The remaining natural areas consist of coastal sage scrub, chaparral, and oak woodlands with annual grassland and very small and isolated patches of freshwater emergent wetland, saline emergent wetland and riparian woodland and scrub.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities present in the Los Angeles Basin region of the project area include urban landscaping, annual grassland, oak woodland, chaparral and ruderal habitats as described in Section 4.4.2.

Sensitive Plant Communities and Associated Wildlife Habitats

Sensitive plant communities in the Los Angeles Basin region of the project area include southern coast live oak riparian forest and southern cottonwood-willow riparian forest as discussed in Section 4.4.2. In addition, diegan coastal sage scrub, riversidean coastal sage scrub, and California walnut woodland are considered sensitive in this region by CDFG (CNDDB 2002) due to fragmentation or reduction as a result of extensive development in the region.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub communities cover steep canyon slopes and bluffs where the soil is shallow and rocky. Dominant plant species include California sage, coast buckwheat, laurel sumac, black sage, white sage, and broom baccharis. Coastal sage scrub communities are considered sensitive communities due in part to the high number of special status species that occupy this habitat, including California coastal gnatcatcher, coastal cactus wren, San Diego horned lizard, orange-throated whiptail, and others.

Riversidean Sage Scrub

Riversidean sage scrub occurs in xeric environments such as steep slopes or other sites with severely drained soils. Dominant plant species in this community include California sagebrush and California buckwheat with associate species such as thickleaf yerba santa (*Eriodictyon crassifolium*), narrowleaf goldenbush (*Ericameria linearifolia*), white sage and black sage. Riversidean sage scrub provides habitat for various small mammals, reptiles, and birds as described in the discussion of coastal scrub in Section 4.4.2.

California Walnut Woodland

Southern California black walnut is endemic to southern California, with its distribution primarily restricted to the Santa Ana Mountains and coastal slopes of the Transverse Ranges of Los Angeles and Ventura Counties. Coast live oak and black walnut also occur in mixed woodland stands, where the two species are co-dominant. Other associate species include bigcone Douglas-fir (*Pseudotsuga macrocarpa*) and canyon live oak (*Quercus chrysolepis*). The habitat value of this plant community is often similar to that of oak woodland, supporting various reptiles, amphibians, passerines and nesting raptors such as Coooper's hawk, sharp-shinned hawk, and white-tailed kite.

Southern Coast Live Oak/Southern Cottonwood-Willow/White Alder Riparian Forest

Riparian habitats in the Los Angeles Basin region of the project area include southern coast live oak riparian forest, southern cottonwood-willow riparian forest, and white-alder riparian forest communities. Southern coast live oak riparian forest consists of coast live oak trees with a herbaceous understory and few understory shrubs. Southern cottonwood-willow riparian forest is composed of Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), black cottonwood (*P. balsamifera* ssp. *trichocarpa*), and an understory of shrubby willows. White alder riparian forest includes the most diverse understory of these three riparian communities with poison oak, California wildrose (*Rosa californica*), snowberry (*Symphoricarpos* sp.), and various willow species. Wildlife species that inhabit riparian forests in the project area are described in Section 4.4.2.

Aquatic Habitat/Freshwater Emergent Wetland

Most of the aquatic habitats in the Los Angeles Basin region have been eradicated or channelized within concrete corridors. Channelization of most of these waterways for flood control management has eliminated the majority of aquatic habitat or reduced it to a very low habitat

value. Streams with aquatic habitat, including the Santa Ana River and San Diego Creek, may support western pond turtle as well as common fishes. Freshwater marsh in the project area typically is dominated by perennial emergent monocots, including cattail and bulrush, as along the stream margins of San Diego Creek. For the most part, this community does not occur in drainages that are channelized and concrete-lined and is restricted in distribution in the Los Angeles Basin region.

Southern Coastal Salt Marsh

In the Los Angeles Basin region, southern coastal salt marsh habitat occurs at Malibu Lagoon, Ballona wetlands, and Upper Newport Bay. This habitat supports many species of shorebirds, wading birds, and waterfowl. Sandy beaches may support nesting special status species such as western snowy plovers and California least terns. Other special status species which may inhabit saline emergent wetland in the Los Angeles Basin region include California black rail and light-footed clapper rail.

Valley Oak Woodland

As described in Section 4.4.4, valley oak woodland is comprised of sparsely distributed valley oak trees with a grassy understory. Special status species which may occur within this habitat in the Los Angeles Basin region are restricted to nesting raptors such as Cooper's hawk, sharp-shinned hawk, and white-tailed kite. Common amphibians and reptiles such as Pacific chorus frog, gopher snake, western rattlesnake, and various species of foraging passerines may inhabit valley oak woodland in the project region as well.

Special-Status Plants

A total of 84 special-status plant species were identified with potential to occur in the proposed Los Angeles Basin region (see Appendix E). Of these, 25 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the Los Angeles Basin region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area are described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 70 special status wildlife species were identified in the Los Angeles Basin (see Appendix E). Of these, 28 are listed threatened and endangered species or candidates for listing. Species most likely to occur in habitats within or adjacent to alignments typical of fiber optic network projects in the project area were determined based on field studies for other fiber optic

network projects in the Los Angeles Basin (see references in Section 4.4.1). These species are discussed below.

Coastal beaches protected from human disturbance provide seasonal nesting habitats for California least terns and western snowy plovers. Special-status wildlife associated with freshwater marshes of the region include California red-legged frogs, southwestern pond turtles, great blue herons, great egrets, and bald eagles. Riparian habitats in the Los Angeles Basin region support small populations of special-status wildlife species such as least Bell's vireos, southwestern willow flycatchers, yellow warblers, yellow-breasted chats, and southwestern pond turtles and arroyo southwestern toads.

The largest assemblage of special-status wildlife species in the region is recorded within coastal sage scrub habitats. Small but intact fragments of this habitat can be found even in highly urbanized portions of the Basin and may support California gnatcatchers, coastal cactus wrens, San Diego horned lizards, orange-throated whiptails, Stephen's kangaroo rats, and Palos Verdes blue and Quino checkerspot butterflies.

Critical Habitat for Listed Wildlife Species

USFWS-designated critical habitat for the arroyo southwestern toad, Riverside fairy shrimp, tidewater goby, and Palos Verdes blue butterfly is located within Los Angeles Basin region of the project area. In addition, areas previously designated by the USFWS or NMFS/NOAA as critical habitat for coastal California gnatcatcher, San Diego fairy shrimp, and southern California steelhead are included in the Los Angeles Basin region.

The **arroyo southwestern toad** (*Bufo microscaphus californicus*), a federal Endangered species and California Species of Special Concern, ranges from the Salinas River Basin to Baja California, Mexico. This species inhabits riparian areas with cottonwood, sycamore, and willow species and sandy streambeds. Desert riparian areas, and washes or intermittent streams also provide habitat. Depending on weather conditions, breeding occurs between March and July in slow-moving shallow pools with gravel or sand substrate. Habitat loss due to urbanization, agriculture and dam construction has contributed to the decline of this species. In addition, the introduction of predatory species such as green sunfish, crayfish, and bullfrogs has adversely affected the arroyo southwestern toad.

The federal Endangered **Riverside fairy shrimp** (*Streptocephalus woottoni*) and **San Diego fairy shrimp** (*Branchinecta sandiegonensis*) inhabit vernal pools and seasonal wetlands from the south coast of California to Baja California, Mexico. These basins typically hold water until April or May due to an impermeable soil layer which prevents water from percolating into soil layers below. Winter or spring rains fill these basins with water and initiate the hatching of fairy shrimp cysts which were deposited in the basin during the previous rainy season. Cysts usually hatch one to three weeks after inundation depending on water temperature and other conditions. During the dry season, cysts may survive temperature extremes and arid conditions until the basins are filled again.

The federal Endangered **tidewater goby** (*Eucyclogobius newberryi*), a California Species of Special Concern, inhabits brackish coastal waters of California. This species may be found in aquatic habitats with a wide range of salinity from freshwater habitats to lagoons and estuaries. Males dig breeding burrows in April or May in sand or mud substrate. Depending on temperature and rainfall, tidewater gobies may continue to breed into November or December. Foraging resources include benthic invertebrates, crustaceans, and aquatic insect larvae.

The **Palos Verdes blue butterfly** is known from one remaining site in San Pedro on the Palos Verdes Peninsula. This species was thought to be extinct for eleven years until this population was discovered in 1994. This coastal scrub habitat supports locoweed, the host plant of this species. Adults emerge in the spring to mate when the host plant begins to flower. Locoweed flowers and seeds provide foraging resources for the larvae. By fall the larvae have transformed into adult butterflies. This species goes through one generation per year.

The **coastal California gnatcatcher** (*Polioptila californica californica*) is federal Threatened species which occurs almost exclusively in the coastal sage scrub plant community (occasionally, it is also found in chaparral). The southern limit of its range coincides with the distribution boundary of this distinctive vegetation type. Coastal sage scrub vegetation which supports coastal California gnatcatcher is composed of relatively low-growing, summer (dry-season) deciduous, and succulent plants. Characteristic plants of this community include California sagebrush, various species of sage, California buckwheat, lemonadeberry, prickly pear and cholla cactus, and various species of Haplopappus (USFWS, 1993). The coastal California gnatcatcher commonly occurs in coastal sage scrub vegetation dominated by coastal sagebrush although in some portions of its range (e.g., western Riverside County) other plant species may be more abundant.

Malibu Creek, and the Santa Clara, Santa Ynez, and Ventura Rivers are known to support **southern California ESU (Evolutionarily Significant Unit) steelhead** (*Oncorhynchus mykiss).* Within the project area, critical habitat for this ESU of steelhead applies to all unblocked river reaches which steelhead may use within the Santa Clara and Santa Monica Bay hydrologic units. In addition, riparian zones and estuarine areas are protected. Dam construction, modification of habitat, and introduction of non-native species has adversely impacted all life stages of steelhead and contributed to the decline of this species in southern California.

4.4.8 EXISTING CONDITIONS FOR SAN BERNARDINO REGION

REGIONAL SETTING

The San Bernardino region of the project area includes the cities of San Bernardino, Ontario, Rancho Cucamonga, Chino, Redlands and Upland (see **Figure 4.4-9**). This region is located in the Southern California Mountains and Valleys ecological subregion, which is separated from the Los Angeles Basin by the Puente and Chino Hills. The San Bernardino region is densely urbanized with small patches of natural vegetation within the region or at the edges. Predominant natural vegetation includes chaparral, oak woodland and mixed evergreen forest habitats.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities in the San Bernardino region include agricultural, urban landscaping, mixed evergreen forest, and chaparral habitats as described in Section 4.4.2. Coastal scrub habitat within the San Bernardino region is considered sensitive because two sensitive plant communities, diegan coastal sage scrub and riversidean sage scrub, occur in this region.

Sensitive Plant Communities and Associated Wildlife Habitats

Diegan coastal sage scrub, riversidean sage scrub, and California walnut woodland occur within the San Bernardino region. These sensitive plant communities are described above in Section 4.4.7.

Special-Status Plants

A total of 51 special-status plant species were identified with potential to occur in the proposed San Bernardino region (see Appendix E). Of these, 19 are listed as Rare, Threatened or endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the San Bernardino region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area were described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 47 special status wildlife species were identified in San Bernardino region (see Appendix E). Of these, 23 are listed Threatened or Endangered species or candidates for listing. Special status species with potential to occur in habitats within this region of the project area are similar to those species identified as potentially occurring in the Los Angeles Basin region. Various species of birds, including coastal cactus wren and coastal California gnatcatcher may breed in coastal sage scrub in this region; Bell's sage sparrow may breed in chamise chaparral habitats. Reptiles such as silvery legless lizard, orange-throated whiptail, San Diego horned lizard, San Bernardino ringneck snake, and California mountain kingsnake may inhabit chaparral and scrub habitats in the region. Mammal species potentially occurring within the San Bernardino region include San Diego black-tailed jackrabbit, *Myotis* bat species, and the San Bernardino and Stephens' kangaroo rats. Aquatic habitat in this region of the project area may support California red-legged frog and mountain yellow-legged frog.

Critical Habitat for Listed Wildlife Species

The USFWS has proposed critical habitat for the San Bernardino kangaroo rat within the San Bernardino region of the project area. Areas previously designated by the USFWS as critical habitat for coastal California gnatcatcher also occur within the San Bernardino region. This species is discussed in Critical Habitat in Section 4.4.7.

The **San Bernardino kangaroo rat** (*Dipodomys merriami parvus*) inhabits alluvial fans, flood plains, and washes in the San Bernardino and San Jacinto Valleys. This species also may inhabit sandy, open areas in various scrub and chaparral habitats with low shrub canopy cover. As with other kangaroo rats, seeds and grains make up the primary food source of the San Bernardino kangaroo rat and are often cached for storage. Other food items include herbaceous vegetation, shrubs, and insects.

4.4.9 EXISTING CONDITIONS FOR RIVERSIDE COUNTY REGION

REGIONAL SETTING

Riverside County includes the eastern end of the Los Angeles Basin, the Coachella Valley and Palm Springs deserts, the San Jacinto, Little San Bernardino, and Santa Rosa mountains, and the Santa Ana Creek, which flows through this region of the project area. The Riverside County region includes primarily urban and agricultural areas and fringes of natural communities which surround the City of Riverside. During the 1980's, Riverside County was the fastest-growing county in California with its resident population expanding by 76% during that decade alone (County of Riverside, 2002). The Riverside County region of the project area includes many of these areas which have experienced rapid population growth and urban development.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities in the Riverside County region include agricultural, urban landscaping, and chaparral habitats as described in Section 4.4.2. Coastal scrub habitat in the Riverside County region is considered sensitive because two sensitive plant communities, diegan coastal sage scrub and riversidean sage scrub, occur in this region.

Sensitive Plant Communities and Associated Wildlife Habitats

Diegan Coastal Sage Scrub/Riversidean Sage Scrub

Diegan coastal sage scrub, and riversidean sage scrub occur within the Riverside County region. These sensitive plant communities are described above in Section 4.4.7.

Southern Cottonwood-Willow Riparian Forest

Southern cottonwood-willow riparian forest is described above in Section 4.4.7. This plant community may occur along Santa Ana Creek and other drainages in the Riverside County region of the project area. Riparian corridors within the region which receive frequent flooding may also support mulefat scrub.

Aquatic Habitat

Interior lakes that are especially important to wildlife in the region include Silverwood Lake, Lake Arrowhead, Big Bear Lake, and Baldwin Lake in the San Bernardino Mountains, and Lake Hemet in the San Jacinto Mountains. There a number of lakes, including Lake Matthews, Lake Skinner and the Prado Basin in western Riverside County, which serve primarily as reservoirs of potable water, or for flood control, water conservation or emergency storage, but which also support numerous species of wildlife. The open water and emergent vegetation associated with these aquatic habitats are of great importance to birds and other wildlife. Aquatic habitat in the Riverside County region is limited to Santa Ana Creek and its tributaries and flood control channels.

Vernal Pools

Vernal pools are seasonal freshwater wetlands that occur in depressions in grassland over an impermeable soil layer. They are characterized by annual species with low cover and a short life cycle. One example in Riverside County is the Southern Interior Basalt Flow Vernal Pools. This is a sensitive community limited to three mesas of Santa Rosa Plateau in southwestern Riverside County. Special status species potentially occurring in vernal pools in the Riverside County region of the project area include Riverside fairy shrimp and San Diego fairy shrimp.

Special-Status Plants

A total of 49 special-status plant species were identified with potential to occur in the proposed Riverside County region (see Appendix E). Of these, 18 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of Riverside County region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area are described in the discussion of plant communities and wildlife habitats in Section 4.4.1. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 51 special status wildlife species were identified in the Riverside County region (**Table E-8** in Appendix E). Of these, 24 are listed Threatened or Endangered species or candidates for listing. Special status species with potential to occur in habitats within this region of the project area are similar to those species identified as potentially occurring in the Los Angeles Basin region. Additional wildlife species which may occur in vernal pool habitat within this region include Riverside fairy shrimp, and San Diego fairy shrimp.

Critical Habitat for Listed Wildlife Species

Areas previously designated by the USFWS as critical habitat for coastal California gnatcatcher also occur within the Riverside County region. This species is discussed in Critical Habitat in Section 4.4.7.

4.4.10 EXISTING CONDITIONS FOR SAN DIEGO COUNTY REGION

REGIONAL SETTING

The San Diego region of the project area is within the South Coast region of the California Floristic Province, which extends from the Pacific Coast to the Peninsular Ranges. The physiography of San Diego consists of a series of deep canyons incised by westward flowing streams with intervening mesas. Historically, the region contained extensive areas of grasslands, coastal scrub, chaparral, oak and riparian woodlands. Remaining habitat fragments on steep canyon slopes, undeveloped mesas, or larger riparian drainages support several species of considerable rarity and a high degree of endangerment, e.g., California coastal gnatcatcher and coastal cactus wren in coastal scrub, least Bell's vireo and willow flycatcher in riparian areas, and San Diego fairy shrimp in vernal pools. The majority of the region is urban, however coastal sage scrub or chaparral habitat on steep slopes that are outside typical construction corridors and larger river and drainage crossings that support riparian and marsh vegetation and aquatic habitat could support special status species.

PLANT COMMUNITIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities within the San Diego County region of the project area include agricultural, urban landscaping, chaparral, and oak woodland habitat. Dense Engelmann oak woodland is considered a sensitive plant community by CNDDB and is described below.

Sensitive Plant Communities and Associated Wildlife Habitat

Dense Engelmann Oak Woodland

Dense Engelmann oak woodland is composed of Englemann oaks with a large constituent of coast live oak trees. Canopy cover is usually low with dense stands of trees and an understory of

poison oak or grassland species. This community intergrades with coast live oak woodland and provides similar habitat value as discussed in Section 4.4.2.

Diegan Coastal Sage Scrub

Coastal sage scrub communities are described above in Section 4.4.7. Coastal sage scrub communities in the San Diego area are subject to specific MSCP measures for preservation due to the high number of special status species that occupy this habitat, including California coastal gnatcatcher, cactus wren, orange-throated whiptail, and others.

Southern Cottonwood-Willow Riparian Forest/White Alder Riparian Forest

Southern cottonwood-willow riparian forest and white alder riparian forest communities are dominated by a mixture of trees and shrubs that form dense woody stands along the major river courses (San Diego River, San Mateo Creek, and Rose Canyon). White alder riparian forest tends to form a narrow band of vegetation surrounding streams in steeper canyons. Young, dense stands of willow comprise the shrubby understories of these forests. Mulefat scrub communities also occur within the San Diego County region of the project area. Riparian vegetation provides habitat for numerous species of birds and other wildlife, and essential habitat for the endangered Least Bell's vireo and willow flycatcher.

Southern Coastal Salt Marsh

Southern coastal salt marsh habitat occurs surrounding San Diego Bay, Mission Bay, and some sloughs in the San Diego County region of the project area. These aquatic habitats occur along the fringe of this region and may be located directly within or adjacent to subsequent activities. Southern coastal salt marsh habitat may support various small mammals, and foraging and breeding birds such as the federal and California Endangered light-footed clapper rail. Dry salt flats which occur adjacent to San Diego Bay may provide nesting habitat for western snowy plover (federal Threatened) and California least tern (federal Endangered).

Aquatic Habitat/Freshwater Emergent Wetland

The San Diego River and other smaller perennial creeks and streams within the San Diego County region of the project area provide moderate to high quality aquatic habitat for fish, amphibians, waterfowl and other water-dependent wildlife. Many of the smaller streams that drain hills and canyon slopes into the larger drainages have been reconfigured for flood control management (channel straightening, lining of bed and banks, diversion of flow), which has eliminated the majority of aquatic habitat or reduced it to a very low habitat value. The San Diego River may support common fish species and serve as a seasonal migratory fish passageway but is not likely to support special status species within the project area. The narrow band of emergent marsh vegetation along canals, ditches, and other drainages in the project area provides some nesting and foraging opportunities and cover for water bird species and small mammals, including mallards, green-winged teals, great blue heron, great egret, marsh wren, song sparrow, red-winged blackbird, raccoon, and California vole.

Special Status Plants

A total of 101 special-status plant species were identified with potential to occur in the proposed San Diego County region (see Appendix E). Of these, 27 are listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the San Diego County region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species.

Critical Habitat for Listed Plant Species

The USFWS has proposed critical habitat for Otay tarplant within the San Diego County region of the project area.

The California Endangered **Otay tarplant** (*Hemizonia conjugens*) occurs in San Diego County and Baja California, Mexico. Open coastal sage scrub and grassland communities, sometimes in mildly disturbed areas, with clay soils provide habitat for this species. Otay tarplant is known from a few sites in San Diego County in the vicinity of San Miguel Mountain, Telegraph Canyon and Otay Mesa. Threats to this species include commercial and residential development and highway construction.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area is described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 69 special status wildlife species were identified in San Diego County (see Appendix E). Of these, 27 are listed Threatened or Endangered species or candidates for listing. Special status species likely to occur in habitats within the San Diego County region were determined based on species potentially occurring in the vicinity of past fiber optic network projects in the region (see references in Section 4.4.1). These species include coastal California gnatcatcher, coastal California cactus wren, least Bell's vireo, southwestern willow flycatcher, southwestern pond turtle, orange-throated whiptail, coastal western whiptail, San Diego horned lizard, and burrowing owl. These are the primary species of concern for subsequent activities in the San Diego County region.

Critical Habitat for Listed Wildlife Species

USFWS-designated critical habitat for the arroyo southwestern toad, Riverside fairy shrimp, tidewater goby, and Quino checkerspot butterfly is located within San Diego County region of the project area. In addition, areas previously designated by the USFWS as critical habitat for coastal California gnatcatcher and San Diego fairy shrimp occur within the San Diego County region.

Arroyo southwestern toad, Riverside fairy shrimp, tidewater goby, and coastal California gnatcatcher are discussed in Critical Habitat in Section 4.4.7.

The ecology of the federal Endangered **Quino checkerspot butterfly** is similar to that of the bay checkerspot butterfly described in Critical Habitat in Section 4.4.4. Host plants for Quino checkerspot butterfly larvae include dwarf plantain (*Plantago erecta*), owl's clover (*Castilleja exserta*), and wooly plantain (*Plantago patagonica*). Grassland, coastal sage scrub, and open chaparral habitats support dwarf plantain. Larvae enter diapause (dormancy) after annual food sources dry up and emerge when rains bring new annual growth. Quino checkerspot butterflies may remain in diapause for several years until suitable resources for growth are available.

4.4.11 EXISTING CONDITIONS FOR IMPERIAL COUNTY REGION

REGIONAL SETTING

The limits of analysis for Imperial County include El Centro, Calexico, Imperial and their immediate surroundings (see **Figure 4.4-15**). These communities are situated in the Imperial Valley, within the Colorado Desert ecological subregion. The valley is a hot, arid, low elevation desert environment. Most of the area has been converted to irrigated agriculture with low density residential and commercial land uses. Biological resources consist mainly of large tracts of cultivated lands that lack natural vegetation and provide minimal habitat value for native wildlife. Natural vegetation in the Imperial County region of the project area, although limited, consists typically of creosote scrub, chenopod scrubs, mesquite and saltbush.

The project area includes a small portion of the New River east of Calexico where it crosses the U.S.–Mexico border, and numerous canals and ditches used for irrigation and drainage of agricultural lands, but with limited habitat value.

PLANT COMMUNTIES AND WILDLIFE HABITATS

Common Plant Communities and Associated Wildlife Habitats

Common plant communities within the Imperial County region of the project area include urban landscaping, agricultural, and annual grassland habitats as discussed above in Section 4.4.2. Annual grasslands in this region generally conform to other Southern California regions as described in this document, with the following exceptions: within the Imperial Valley, there is greater representation of grasses of the arid southwest, such as cheat grass (*Bromus tectorum*), and there is greater representation of perennial shrubs as a result of the interface between grasslands and desert scrub vegetation types.

Sensitive Plant Communities and Associated Wildlife Habitats

Desert Dunes

Desert scrub habitat in the Imperial County region is described in Section 4.4.2. This habitat type also includes desert dunes, a plant community considered sensitive by CNDDB. Desert dune communities form in areas where sand has accumulated in the desert and can support shrub species such as burrobush, buckwheat, saltbush, and herbs such as evening primrose and prairie clover (*Dalea* sp.). Species which inhabit desert dunes and other types of desert scrub habitat include various reptiles such as common kingsnake and desert iguana, and mammals such as kangaroo rats, desert kit fox, coyote and bobcat. The federal and California Threatened desert tortoise, and the flat-tailed horned lizard (California Species of Special Concern) are known from desert dune and scrub habitats.

Riparian Forest, Woodland and Scrub

Riparian habitats within the channel of the New River likely include extensive stands of non-native giant reed (*Arundo donax*) and tamarisk (*Tamarix* spp.). Both of these are highly invasive weed species that invade and displace native riparian habitats, resulting in substantially reduced wildlife habitat value. Where the riparian corridor is intact, this river may support a wide diversity of wildlife species as described in Section 4.4.2.

Aquatic Habitat

Aquatic habitat within the Imperial County region consists of the New River and numerous canals and drainages that have been channelized for agricultural or flood control purposes. These drainages may support common fishes and amphibians but are not likely to support special status fish species.

Special-Status Plants

A total of 77 special-status plant species were identified with potential to occur in the Imperial County region (see Appendix E). One of these species is listed as Rare, Threatened or Endangered. These numbers were determined on the basis of documented occurrences of these species or by the presence of habitats that would support these species. Much of the Imperial County region of the project area consists of commercial, industrial and residential developments with no habitat for special status plant species.

WILDLIFE RESOURCES

Common and characteristic wildlife of the habitats in this area is described in the discussion of plant communities and wildlife habitats in Section 4.4.2. The remainder of this section focuses on special status wildlife.

Special-Status Wildlife

A total of 10 special status wildlife species were identified in the Imperial County region of the project area (see Appendix E). Of these, four species are listed as Endangered or Threatened. Special status species with potential to occur in habitats within this region of the project area are similar to those potentially occurring in the Los Angeles Basin region. In addition to these species, the desert tortoise and flat-tailed horned lizard may occur within the Imperial County region.

4.4.12 REGULATORY SETTING

This section briefly describes federal, state and regional regulations, permits, and policies that apply broadly to biological resources and wetlands within the project area. Local ordinances, policies and guidelines (i.e. those set forth in City General Plans) that address biological resources are not discussed in detail in this document. Nonetheless, such local regulations are incorporated into this document by reference and would apply to subsequent activities in the project area and additionally considered in the design of thoseactivities.

U.S. ARMY CORPS OF ENGINEERS AND U.S. ENVIRONMENTAL PROTECTION AGENCY REGULATION OF WATERS OF THE UNITED STATES, INCLUDING WETLANDS

The Corps and Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act. Proposed activities that would result in the placement of dredged or fill material into waters of the United States require a Section 404 permit from the Corps. Some classes of fill activities may be authorized under general permits if specific conditions are met.

Utility line construction activities, such as fiber optic cable installation activities, that result in the placement of fill into waters of the United States generally are authorized under Section 404 Nationwide Permit No. 12 (at the discretion of the Corps). Nationwide permits do not authorize activities that are likely to jeopardize the existence of a Threatened or Endangered species (listed or proposed for listing under the federal ESA) or that may affect properties listed or eligible for listing in the National Register of Historic Places (56 FR 59134-59138, November 22, 1991). In addition to conditions outlined under each nationwide permit, project-specific conditions may be required by the Corps as part of the Section 404 permitting process.

The federal government also supports a policy of minimizing “the destruction, loss, or degradation of wetlands.” Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

FEDERAL POLICIES ON RIPARIAN COMMUNITIES IN CALIFORNIA

Riparian communities have a variety of functions, including providing high-quality habitat for resident and migrant wildlife, streambank stabilization, and runoff water filtration. Throughout the United States, riparian habitats have declined substantially in extent and quality compared with their historical distribution and condition. These declines have increased concerns about dependent plant and wildlife species, leading federal agencies to adopt policies to arrest further loss. USFWS mitigation policy identifies California's riparian habitats as belonging to resource Category 2, for which no net loss of existing habitat value is recommended (46 FR 7644, January 23, 1981).

STATE POLICIES AND REGULATIONS ON STREAMS AND WETLANDS

The CDFG regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. These activities are regulated under the California Fish and Game Code (Section 1601 for public agencies and Section 1603 for private individuals). Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. A Streambed Alteration Agreement will be requested from CDFG for all construction activities that have the potential to result in alteration or fill of areas subject to Section 1603.

STATE LANDS COMMISSION

The State Lands Commission (SLC) administers lands under sovereign ownership by the state, which includes the beds of most naturally navigable waterways, such as major rivers, streams and lakes, and tidal and submerged lands below the high tide line. The SLC issues Land Use Leases or Permits for use of state lands that are determined to be consistent with the public trust values for fisheries, navigation, public access, recreation, wildlife habitat and open space.

FEDERAL ENDANGERED SPECIES ACT

The USFWS (jurisdiction over plants, wildlife, and resident fish) and National Marine Fisheries Service (NMFS; jurisdiction over anadromous fish and marine fish and mammals) oversee the federal ESA. Section 7 of the Act mandates that all federal agencies consult with the USFWS and NMFS to ensure that federal agencies actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. The federal agency is required to consult with the USFWS and NMFS if it determines a "may effect" situation will occur in association with the proposed project. The federal ESA prohibits the "take[9]" of any fish

[9] Take is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct.

or wildlife species listed as Threatened or Endangered, including the destruction of habitat that could hinder species recovery.

Section 3 of the Act requires the USFWS or NMFS to designate critical habitat for Threatened or Endangered species. Critical habitat is defined by Section 3 of the Act as habitat that is "essential to the conservation of the species." Section 7 of the Act protects USFWS- and NMFS-designated critical habitat for listed species and prohibits "destruction or adverse modification" of these designated areas. Under Section 9 of the federal ESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the removal, possession, damage or destruction of any Endangered plant from federal land. Section 9 also prohibits acts to remove, cut, dig up, damage, or destroy an Endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9 of the federal ESA.

Section 10 of the federal ESA requires the issuance of an "incidental take" permit before any public or private action may be taken that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt (i.e., take) any individual of an Endangered or Threatened species. The permit requires preparation and implementation of a habitat conservation plan that would offset the take of individuals that may occur, incidental to implementation of the project by providing for the overall preservation of the affected species through specific mitigation

STATUTES, CODES AND POLICIES AFFORDING LIMITED PROTECTION TO BIRD SPECIES

The federal Migratory Bird Treaty Act (16 U.S.C., Sec. 703, Supp. I 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5 1992). Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG. Any loss of fertile eggs, nesting raptors, or any activities resulting in nest abandonment would constitute a significant impact. This approach would apply to red-tailed hawks, American kestrels, barn owls, and other birds of prey. Project impacts to these species would not be considered "significant" in this EIR unless they are known or have a high potential to nest on the site or rely on it for primary foraging.

The federal Bald Eagle Protection Act prohibits persons within the United States (or other places subject to U.S. jurisdiction) from "possessing, selling, purchasing, offering to sell, transporting,

exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest or egg thereof."

CALIFORNIA ENDANGERED SPECIES ACT

California implemented its own Endangered Species Act in 1984. The state act prohibits the take of Endangered and Threatened species; however, habitat destruction is not included in the state's definition of take. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. The CDFG administers the act and authorizes take through Section 2081 agreements (except for designated "fully protected species").

Regarding rare plant species, CESA defers to the California Native Plant Protection Act of 1977, which prohibits importing of rare and endangered plants into California, taking of rare and endangered plants, and selling of rare and endangered plants. State-listed plants are protected mainly in cases where state agencies are involved in projects under CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but can be protected under CEQA.

CALIFORNIA COASTAL COMMISSION

The California Coastal Commission is authorized by the *Coastal Act* to analyze, plan and regulate land and water uses in the coastal zone of California. The *Coastal Act* maintains specific standards for activities involving public access and recreation, commercial fisheries, wildlife and fisheries habitat preservation, industrial uses, power plants, and other land and water use issues. Through administration of the federally approved *Coastal Zone Management Act*, the Commission also regulates activities that affect coastal resources and require a federal permit, license or assistance. The Commission may regulate activities within the San Francisco Bay Area, Los Angeles Basin, Santa Cruz and San Diego County regions of the project area. In addition, Local Coastal Plans (LCPs) may regulate development within the regions of the project area listed above. **Table 4.9-1** in Chapter 4.9 Land Use, Plans and Policy identifies LCPs applicable to the project area.

BAY CONSERVATION AND DEVELOPMENT COMMISSION

The Bay Conservation and Development Commission (BCDC) is authorized by the *McAteer Petris Act* to analyze, plan and regulate San Francisco Bay and its shoreline. It implements the San Francisco Bay Plan, and regulates filling and dredging in the Bay, its sloughs and marshes, certain creek and tributaries. BCDC jurisdiction includes the Bay and a shoreline band that extends inland 100 feet from the high tide line. BCDC permits are required for all work within either the Bay or the shoreline band within the San Francisco Bay Area region of the project area. Areas potentially within BCDC jurisdiction include some creeks, tidal sloughs, salt marshes and shoreline areas throughout this region of the project area.

REGIONAL HABITAT CONSERVATION PLANS

Several multi-species Habitat Conservation Plans (HCPs) are either under development or have been prepared in the general project region. **Table 4.9-2** in Chapter 4.9 Land Use, Plans, and Policies identifies HCPs and Natural Community Conservation Programs in the project area. These planning documents focus on the protection of agricultural lands and wildlife, and riparian enhancement. Regional HCPs, such as these, are administered by imposing a small, per-acre development fee on new projects in undeveloped areas. Concurrently, the HCPs establish one or more habitat reserves that are funded by development. If proposed subsequent activities within existing developed areas and within roads, would avoid waterways by design, and would not otherwise adversely affect biological resources within the scope of any existing or currently proposed HCP, then they likely would be considered exempt or "covered" activities in the context of those HCPs.

NATIVE AND HERITAGE TREE ORDINANCES

Some cities and counties have adopted native or heritage tree ordinances or policies to protect large or native trees. Most ordinances or policies require the project applicant to obtain a tree removal permit and compensate for the removal of protected trees. Removal and indirect impacts on heritage and native trees will be avoided and minimized to the fullest extent possible during construction.

OTHER PROTECTED LANDS

Though the potential is likely low, subsequent activities may be located within lands protected or governed by the United State Forest Service (USFS), the United State Bureau of Land Management (BLM), California Department of Parks and Recreation, the National Park Service (NPS), the United States Army and other regional or local agencies. These lands may include national parks, national forests, regional and state parks, wildlife refuges, marine sanctuaries, and military bases. Construction activities on these lands would be subject to all applicable regulations of these agencies. Several land management agencies and potential regulations are discussed below. A more detailed discussion of specific land management agencies which regulate land within the project area is presented in Section 4.9 Land Use and Planning.

United States Forest Service

The mission of USFS is to achieve quality land management under sustainable multiple-use management. Multiple uses include timber, watershed, recreation, livestock and wildlife habitat. The USFS policy is to ensure that no species becomes threatened or endangered because of USFS actions, and to maintain viable populations of all native species in habitats distributed throughout their geographic range on National Forest lands. Specific actions to manage biological resources are developed on an individual National Forest through the Forest Land Management Plans (Forest Plans).

United States Bureau of Land Management

The BLM implements its responsibilities for biological resource management by carrying out inventory, designation of Areas of Critical Environmental Concern, monitoring, research, protection, and public education. Some lands within the project area, such as desert areas in Southern California regions, may be owned and managed by BLM. BLM field offices which administer BLM lands within Southern California include: Bakersfield (for BLM lands in Ventura County); Ridgecrest (for northern Los Angeles and northwestern San Bernardino Counties); Barstow (for central San Bernardino County); Needles (for eastern San Bernardino County); Palm Springs/South Coast (for southern Los Angeles, southwestern San Bernardino, Orange, and Riverside Counties); and El Centro (for Imperial County).

California Department of Parks and Recreation

Different park designations dictate the extent to which natural resources are a management priority; natural preserves, state parks, state reserves and state wilderness designations indicate that the area has outstanding natural features. By contrast, state historic preserves, state recreation areas, state beaches and state vehicular recreation areas place a higher priority on historic or recreation activities, although they may contain areas designated and protected for their natural features.

National Park Service

The purpose of NPS is to manage the natural resources of the national park system to maintain, rehabilitate, and perpetuate their inherent integrity. NPS manages national parks and wilderness areas, the latter being less accessible, less developed, and often less intensively visited. The natural resource policies of the NPS are aimed at providing the American people with the opportunity to enjoy and benefit from natural environments evolving through natural processes minimally influenced by human actions. Public purposes of wilderness will include recreation, scenic preservation, scientific study, education, conservation, and historical use.

Marine Protection, Research and Sanctuaries Act of 1972

This legislation allowed for the establishment of marine sanctuaries such as the Channel Islands National Marine Sanctuary around the Channel Islands. This Act provides increased protection from a variety of human influences on the marine resources within the sanctuary. Section 103 of this Act regulates the transportation of dredged materials into ocean waters. This Act is implemented through a permit granted by the U.S. Army Corps of Engineers (Corps) which utilizes the EPA’s ocean disposal criteria to regulate the disposal of dredged materials.

4.1.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The analysis of significance of project effects is based on the criteria described in the environmental checklist above. Additionally, the following general criteria were also considered in determining whether an effect on biological resources would be significant and adverse:

- federal or state legal protection of the resource or species,
- federal or state agency regulations and policies,
- local regulations and policies,
- documented resource scarcity and sensitivity both locally and regionally, and
- local and regional distribution and extent of biological resources.

Based on the State CEQA Guidelines and the general criteria identified above, effects on biological resources were considered significant if the proposed project would result in any of the following:

- long-term degradation of a sensitive plant community because of substantial alteration of land form or site conditions (e.g., alteration of wetland hydrology);
- substantial loss of a plant community and associated wildlife habitat;
- fragmentation or isolation of wildlife habitats, especially riparian and wetland communities;
- substantial disturbance of wildlife resulting from human activities;
- avoidance by fish of biologically important habitat for substantial periods, which may increase mortality or reduce reproductive success;
- disruption of natural wildlife movement corridors;
- substantial reduction in local population size attributable to direct mortality or habitat loss, lowered reproductive success, or habitat fragmentation of:
  - species qualifying as rare and endangered under CEQA,
  - species that are state-listed or federally listed as threatened or endangered, or
  - portions of local populations that are candidates for state or federal listing and federal and state species of concern;
- substantial reduction or elimination of species diversity or abundance.

IMPACT MECHANISMS

Biological resources could be directly affected by construction activities during fiber optic cable facilities installation, by construction of regenerator / OP-AMP stations, or by ongoing operational and maintenance activities along the fiber optic cable routes.

Direct and indirect disturbance from construction activities could result in the loss or degradation of biological resources from cable system installation (including cable, conduit, and associated facilities) through the following ground-disturbing activities:

- plowing, trenching, or pavement cutting during installation of fiber optic facilities;
- temporary stockpiling of soil or construction materials and side-casting of soil and other construction wastes;
- excavation for bore pits, handholes, manholes and assist points;
- use of designated equipment staging areas;
- soil compaction, dust, and water runoff;
- vehicle traffic and equipment and materials transport along the construction corridor;
- noise disturbance to wildlife species from construction activities; and
- temporary parking of vehicles on the road shoulder outside the construction zone on sites that support sensitive resources (sites not designated as equipment staging areas).

The following analysis identifies subsequent activities tiered off of this Program EIR that may result in significant adverse impacts to biological resources, and identifies classes of biological resources that could be the receptors of such impacts. The impacts are based entirely on the range of activities covered under the Project Description, and the scale and intensity of the anticipated or potential impacts are based on prior experience with construction of fiber optic facilities. Potential receptors (*i.e.*, species or habitats) have been identified for the entire project area. However, the degree to which species or habitats may be affected by subsequent activities will be determined after selection of actual routes and implementation methods in subsequent documents to this Program EIR. For this reason, the impact analysis addresses biological resources taxonomically (i.e. in groupings of similar organisms or habitats) on the presumption that such groups may respond to impacts in similar ways.

The mitigation measures are organized in this way as well. At the programmatic level of this analysis, the mitigation measures are intended to establish criteria and protocols for the eventual crafting and refinement of measures to avoid or reduce specific impacts identified through analysis of subsequent activities that will tier off this Program EIR. The eventual impact-specific mitigations shall, at a minimum, include the components described in this document.

The mitigation measures described for potential adverse effects to special-status species have not been developed through formal consultation or coordination with resource agencies (e.g., CDFG and USFWS). The mitigation measures may be modified during coordination with the resource agencies for subsequent activities. Additional mitigation measures that may be identified as part of the permit review process (e.g., Section 404, 1603 streambed alteration agreement, or biological opinion, if needed) would be implemented as part of the project and monitored during construction to ensure compliance.

The term "qualified wildlife biologist" as used below indicates a person with at least an undergraduate degree in wildlife or a related field, and either professionally certified as a Wildlife Biologist (C.W.B.) by The Wildlife Society, or working under the direct supervision of a C.W.B.

The term "qualified botanist" as used below indicates a person with at least an undergraduate degree in botany, plant ecology or a related field, and with a minimum of three years professional field experience within the region or working under the direct supervision of a professional botanist with at least six years field experience in the region.

IMPACT ASSESSMENT

GENERAL IMPACTS ASSOCIATED WITH CONSTRUCTION OR MAINTENANCE WITHIN OR ADJACENT TO UNDEVELOPED AREAS

Impact BIO-1: Installation and maintenance of cable and supporting equipment and other facilities within or adjacent to undeveloped areas could result in adverse impacts to biological resources in the absence of route surveys to identify specific locations of biological resources within the project area. (Potentially Significant)

The extent to which biological resources may impacted by subsequent activities will be determined when work plans, including construction installation methods, are submitted to the CPUC for a permit to construct. The following general mitigation measures will apply to all subsequent activities to this Program EIR within or adjacent to undeveloped areas to prevent significant impacts to biological resources.

Mitigation Measure BIO-1a: Sempra Communications shall retain a qualified biologist to evaluate specific location descriptions, including, as necessary, field assessments of each work plan, and documentation of the findings of this assessment. This evaluation will include a discussion of biological resources with moderate to high potential to be affected by the proposed action, and a brief justification for those not considered further (i.e. those species for which no habitat occurs in the proposed project area or sensitive habitat types not present within the project area). The assessment shall also include a search of most recent CNDDB records for the U.S. Geological Survey (USGS) quads within which the work plan occurs.

If Sempra Communications determines that biological resources are not constraints to specific activities, the consultant will prepare a justification for why further biological studies (biological resource surveys or monitoring) are not necessary. Documentation shall be provided to CPUC for review, resulting in either concurrence with the findings implicit in issuance of a permit to construct, or a request for further information or clarification.

If Sempra Communications determines that biological resources present constraints to construction, then Sempra Communications will prepare an action plan for monitoring and

documentation of observations and submittal of monitoring progress reports to CPUC. Monitors[10] shall be hired and trained prior to construction and shall be responsible for pre-construction surveys, staking of resources in the field prior to construction, onsite monitoring, documentation of violations and compliance, coordination with contract compliance inspectors, worker environmental education (as necessary; see Mitigation Measure BIO-1b).) and post-construction documentation.

Mitigation Measure BIO-1b: Sempra Communications shall retain qualified biologists to conduct an environmental education program for construction crews and their supervisors before construction activities begin (including site preparation and staging of equipment and materials), and shall enforce construction restrictions described elsewhere in this section prior to construction.

Prior to construction, biological monitors shall hand out written materials describing sensitive resources, resource avoidance, permit conditions, and fines. The crew foreman would be responsible for ensuring that crew members adhere to the guidelines and restrictions. Multiple environmental education programs would be conducted as needed, including morning "tailgate" sessions, to update crews as they advance into sensitive areas, and to educate new personnel brought on the job during the construction period.

Mitigation Measure BIO-1c: In the majority of circumstances, trenching installation methods are expected to occur in existing public rights of way within urbanized areas. In some circumstances, trenching could occur in roadways immediately adjacent to habitat potentially occupied by special status species. Only rarely might trenching installation occur on land that is undeveloped. In these latter two circumstances, the following measures shall be applied to avoid or minimize impacts of noise and activity associated with trenching installation on special status species:

- All trenching shall be backfilled as soon as possible to prevent entrapment of animals. Any trench left overnight shall be covered or adequately fenced.
- Trenches shall be inspected in the morning if the trench is inadvertently left open overnight, or if covering is incomplete. Alternatively, escape ramps may be used if approved by the biological monitor.
- Only biological monitors may remove animals from trenches or from the work areas. Only biological monitors with specific permits from resource agencies may move listed specials status species.
- Trenching spoils shall be placed within future disturbed areas or within the ROW.

[10] Monitors also shall have, at a minimum, a Bachelor's degree in natural resources or a minimum of three years experience monitoring construction projects with biological resource issues. As used in this document, "monitors" refers to individuals responsible for monitoring biological or other natural resources.

- Topsoil shall be stockpiled separately from other excavated soils. Ensure that backfilling occurs in the reverse order of excavation.

- Revegetation, where required as a site-specific mitigation measure, shall be accomplished through replacement of topsoil and native species, and erosion control measures must be in place prior to the first rain in the fall, or by October 15, whichever is earlier. Exceptions to this cut-off date may be applied for on a case by case basis.

Mitigation Measure BIO-1d: Minimum standards to reduce or avoid impacts from aerial installation:

- Avoid use of helicopters for OPGW cable installation during the breeding season of birds and bats or in areas that support species sensitive to noise (e.g. certain nesting raptors).

- To the extent possible, previously disturbed sites within the project area and existing access roads shall be used by vehicles assisting helicopters in aerial installation. Storage of equipment, location of office trailers, parking of vehicles, and any other surface-disturbing activity shall take place within these previously disturbed areas. Parking and vehicle storage areas shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle off-road travel.

Mitigation Measure BIO-1e: The following general construction guidelines will be implemented to reduce or avoid impacts to biological resources:

- Except on paved or federal, state or county-maintained roads, vehicles shall not exceed 20 miles per hour.

- No firearms are allowed on site except as required by bonded security personnel.

- No pets are allowed on site.

- All food items shall be contained and removed from the site daily to prevent attracting wildlife to the site.

- Prior to construction in areas with natural and/or undisturbed habitat (or other area defined by biologist), each access route and construction area shall be clearly flagged, signed or staked, limiting construction activities to the areas designated on the pre-construction plan.

- If flags or staking are required to demarcate/delineate natural or undisturbed habitat, then construction activities shall be restricted to the Right-of Way (ROW), or the future site of associated facility, with work area boundaries delineated with flagging or other marking to minimize surface disturbance.

- The area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other

limiting factors. To the extent possible, previously disturbed sites within the project area shall be used for the stockpiling of excavated material, storage of equipment, digging of slurry and burrow pits, location of office trailers, parking of vehicles, and any other surface-disturbing activity. Work area boundaries, including parking and vehicle storage, shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle off-road travel.

- Erosion control measures (e.g., netting or staking) shall be placed along new roadways that are construction are being utilized for the construction activity if within sensitive plant areas and road outslopes exceed 20%.

- When working near or above streams (<100 feet), do not move earth within 24 hours of a predicted storm.

Significance After Mitigation: Less than Significant.

IMPACTS WITH POTENTIAL TO ADVERSELY AFFECT SPECIAL STATUS SPECIES OR THEIR HABITAT

Impact BIO-2: Installation of cable and supporting equipment and other facilities within or adjacent to stream crossings, riparian habitats, and wetlands could result in permanent or temporary adverse effects to special status wildlife species associated with these aquatic and riparian habitats. (Potentially Significant)

Construction activities within or adjacent to aquatic, riparian and wetland habitats have the potential to adversely impact special status wildlife species through temporary removal of vegetation, alteration of hydrologic regime, accidental direct mortality from mechanical equipment, entrapment in open trenches, and harassment due to noise or vibration. Accidental release of deleterious fluids, such as bentonite clay used during boring, may result in mortality of individuals or destruction of breeding habitat for amphibians and fish. Removal of riparian vegetation eliminates foraging and nesting habitat, disrupts essential migratory corridors, and results in higher water temperatures that may be inhospitable to native fish. The hydrology and soil profile of vernal pools or other seasonal wetlands that may support special status wildlife species (such as fairy shrimp) may be disturbed or altered by construction activity, including excavation, trenching and heavy equipment traffic. Special status species may occur within aquatic habitats in the project area are listed in Appendix E.

Installation of fiber optic cable facilities could result in the disturbance of special-status wildlife species located in and adjacent to subsequent activities in aquatic, riparian and wetland habitats, potentially reducing local populations and reducing habitat for these species. Effects to these species would be avoided or minimized by incorporation of the standards discussed in Mitigation Measures BIO.1a-e, and construction mitigation strategies that consider the life history and specific needs of each species. The biological report prepared as directed in Mitigation Measure

BIO.1a will identify potential aquatic habitat for special status invertebrates, fish, amphibians, and reptiles in the project area.

Mitigation Measure BIO-2a: Wherever feasible, avoid riparian and wetland habitats that support special-status aquatic species by establishing, maintaining, and observing exclusion zones. If avoidance of riparian and wetland habitats is possible through directional bore or jack-and-bore methods, the following measures would apply:

- If an amphibian/reptile exclusion fence is required to prevent migration of listed amphibians or reptiles into the construction area, the fence shall be constructed under the direction of a qualified biologist. The fence shall be constructed of 4x8-foot or 4x10-foot plywood sheets and be located to avoid all burrows. It shall extend three feet six inches above the ground and six inches below ground. The fence shall be supported sufficiently to maintain its integrity, and maintained in good condition for the duration of ground-disturbing activities, including site restoration or revegetation following construction. The biological monitor will indicate when fences may be removed.

- A biological monitor shall visit each wetland or stream boring site at least once daily during construction, with continuous monitoring at streams that support fisheries habitat or provide habitat for special status species. The monitor will check exclusion fencing to ensure that it is intact. The biological monitor shall ensure that all provisions of the state and/or federal wetlands permits are followed and that an adequate setback of at least 20 feet is observed at wetland and/or riparian (woody vegetation) edges that provide suitable habitat for sensitive species. This setback distance is considered an initial guideline which may be modified at specific sites following informal consultation with federal and state resource agencies, and as new information becomes available regarding wildlife habitat use. In addition, because a resource specialist will inspect all stream crossings prior to construction, additional sites that were not initially identified as potential habitat may be identified as special status species habitat at a later time.

- In the event that equipment is required to operate in any watercourse with flowing or standing water for any reason (for example, cleanup of an accidental bentonite clay spill), a biological resource monitor shall be present at all times to alert construction crews to the possible presence of sensitive species at risk during boring operations. If any harm or harassment to occupied aquatic habitat could occur, the monitor shall immediately and directly notify the construction supervisor to halt the activity and the construction technique modified to eliminate any chance of harm to the species. In the case of an accidental substance release into one of these streams, resource agencies shall be contacted immediately.

- To avoid affecting habitat that may support sensitive aquatic species, impacts on woody riparian vegetation may be avoided by boring underneath drainages that support this habitat type. A minimum 20-foot-wide setback shall be established and staked by a resource specialist before construction activities. This buffer shall extend between the edge of the

woody riparian vegetation and construction exclusion fencing. Equipment shall be located beyond this point.

- Woody riparian vegetation close within the vicinity of subsequent activities that could be indirectly or inadvertently affected by construction operations shall be protected by installation of temporary fencing or staking and flagging of a minimum 20-foot-wide setback. Depending on site-specific conditions, this buffer may be narrower than 20 feet (e.g., in the case of a concrete-lined ditch) or wider than 20 feet (where special status species may be present), as determined by a qualified biologist. At locations where equipment access (e.g., bore entrance and exit pits) is located entirely within roads and no sensitive resources are present, no stream setback distances may be required. Identification and protection of woody riparian vegetation close to the work zone shall include either flagging or fencing, depending on site-specific conditions. The resource monitor shall confirm that protective measures are in place at specific work locations before construction activities begin at each crossing site. Protective fencing shall remain in place until all construction activities in the area are complete. No woody vegetation greater than one inch in diameter shall be removed from stream corridors without permission from CDFG (see Mitigation Measure BIO-11a).

- Confine construction equipment and associated activities to the designated construction areas in areas that support sensitive resources. In areas that support sensitive biological resources (e.g., areas that support riparian and wetland communities and special-status species), the area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, public health and safety, and other limiting factors. Work area boundaries shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying and minimize the potential for inadvertent worker intrusion into sensitive areas. Special habitat features identified by the resource monitor shall be avoided to the extent possible and previously disturbed areas within the work site shall be utilized for stockpiling excavated materials, equipment storage, and vehicle parking. During the worker environmental education program, construction personnel shall be informed of the importance of maintaining a narrow work corridor. The resource monitors shall ensure that construction equipment and associated activities avoid any disturbance of sensitive resources outside the construction corridor.

- If construction is proposed in upland areas adjacent to potential breeding habitat for listed species or candidate species for listing, a qualified wildlife biologist will conduct pre-construction surveys of these areas for aestivation habitat for these species. If feasible within the context of the work area, aestivation areas would be temporarily fenced and avoided. At locations where aestivation burrows are identified and cannot be avoided, aestivation burrows of non-listed species (*i.e.*, California tiger salamander) would be excavated between May and October by hand prior to construction and individual animals moved to natural burrows or artificial burrows constructed of PVC pipe within 0.25 miles of the construction site.

Mitigation Measure BIO-2b: If avoidance of aquatic or riparian habitats with the potential to support non-listed special-status aquatic species is not feasible, the following would apply:

- Construction activities will occur between March and October when water flow is absent or at its lowest level unless otherwise negotiated with responsible agencies.
- Prior to construction, a qualified biological monitor will survey the construction area, including aquatic habitat and adjacent upland habitat, for special-status species.
- If non-listed special-status species are identified within the construction area, the biological monitors will temporarily relocate individuals upstream of the construction site, and temporary barriers will be placed around the construction site to prevent ingress.

Mitigation Measure BIO-2c: If avoidance of aquatic or riparian habitats with the potential to support listed aquatic species is not feasible, a plan to avoid or reduce adverse impacts to these species will be developed through informal consultation with CDFG, USFWS, and NMFS, depending on the species potentially present at the site. If a Programmatic Biological Opinion (PBO) has been developed for specific listed species potentially present at the site (i.e. California red-legged frog, giant garter snake, vernal pool fairy shrimp), measures from this PBO such as seasonal restrictions, pre-construction surveys, worker environmental education sessions, biological monitoring, and revegetation programs will be included in the plan.

Significance After Mitigation: Less than significant.

Impact BIO-3: Construction that occurs within or adjacent to habitat that supports nesting birds or breeding bats may disrupt breeding behavior and cause nest/roost abandonment and loss of young. (Potentially Significant)

Installation of fiber optic cable facilities may involve the removal of bat roosts and nesting habitat for listed birds, raptors, and other birds protected by the Federal Migratory Bird Treaty Act, Federal Bald Eagle Protection Act, and CDFG Code Section 3503.5. The biological report prepared as directed in Mitigation Measure BIO-1a will identify potential nesting/roosting habitat for special status birds and bats in the project area. If nest/roost removal occurs during the breeding season, direct mortality to these species and their young may occur. In addition, human disturbances from construction activities and noise from aerial installation using helicopters could cause nest/roost abandonment and death of young or loss of reproductive potential at active nests/roosts located near the project construction areas.

Mitigation Measure BIO-3a: If construction activities are scheduled during the non-breeding season (generally September through January, but this is subject to case-by-case consideration of the breeding activity) within or adjacent to habitats that may support protected nesting bird or roosting bat species, mitigation is only required for certain species for which CDFG or USFWS has established non-breeding season protocols (i.e. burrowing owl). Measures such as avoidance and passive relocation of species, which are included in these protocols, will be required for construction activities within or adjacent to suitable habitat.

Mitigation Measure BIO-3b: If construction activities are scheduled during the breeding season (generally February through August, but this is subject to case-by-case consideration of the breeding activity), a no-disturbance buffer zone would be established around active nests/roosts to avoid potential adverse effects on protected nesting birds and breeding bats. Helicopters would not be used to install fiber optic facilities during the breeding season in areas which may support breeding birds or bats.

If construction activities are scheduled to occur during the breeding season, a qualified wildlife biologist will conduct pre-construction surveys of all potential nesting habitat within 500 feet of project construction areas to identify nest/roost sites. If active nests/roosts are identified during these preconstruction surveys, a no-disturbance buffer would be created around the active nest/roost. If surveys indicate that nests/roosts are inactive or potential habitat is unoccupied during the construction period, no further mitigation would be required. The size of individual buffers would be determined based on an evaluation of the site by a qualified biologist. The evaluation would be based on the presence of topographical features that obstruct the line of site from the construction activities to the nest/roost or observations of the nesting pair during construction based on the level of ongoing disturbance (e.g., farming activities or road traffic) and the observed sensitivity of the birds or bats. Site evaluations and buffer adjustments would be done in consultation with the local CDFG representative or according to CDFG protocols for specific species (i.e. burrowing owl). Designated buffer areas would be identified in the field by staking and flagging. Buffer areas would remain in place until the end of the breeding season or until it is determined that young have fledged.

Significance After Mitigation: Less than significant.

Impact BIO-4 Construction that occurs within or adjacent to habitat that supports special status burrowing mammals may result in adverse impacts to these species. (Potentially Significant)

Special status burrowing mammals (e.g. certain species of kangaroo rats, San Joaquin antelope squirrel, and others) may be present within or adjacent to construction areas associated with subsequent activities of this project. The biological report prepared as directed in Mitigation Measure BIO-1a will identify potential habitat for special status burrowing mammals in the project area. Potential impacts to these species include noise disturbance, disruption of reproductive behavior, den destruction and direct mortality of these species.

Mitigation Measure BIO-4a: Pre-construction surveys of work areas within or adjacent to undeveloped areas determined to be potential habitat shall be conducted by qualified wildlife biologists trained to recognize burrows and dens of particular mammals, as well as tracks, scat and other diagnostic sign. A habitat assessment of the site shall be conducted by a qualified biologist to determine whether special-status mammal habitat, including burrows or dens, exists within proximity of the work area, and if so, whether the proximity, type of activity, and distance from the work could result in abandonment of the burrows or dens, depending on the species.

Mitigation Measures BIO-4b: If potential habitat for special-status burrowing mammals (burrows, scat, tracks, or other diagnostic sign) is located within 0.5 miles of construction areas but greater than 200 feet from proposed activities, the following measures shall apply:

- Exclusion fencing shall be constructed and maintained in good condition around construction areas. The temporary fence shall be constructed with typical silt fencing, and shall be substantial enough to deter animals from entering the work area and to prevent parking construction vehicles or staging or storage of construction materials on adjacent habitat. The location of the fence shall be determined by the biological monitor.

- All open trenches shall be covered and secured at the end of each work day. If trenches remain excavated overnight, temporary escape ramps shall be installed with a 2:1 slope or less or trenches shall be covered by steel plate or plywood. All excavated trenches shall be checked in the morning prior to construction to ensure that no wildlife species are inadvertently trapped.

- A biological monitor shall inspect the fences and trenches at a minimum of once a day. Any wildlife trapped in the trenches shall be moved outside the construction area. If listed species are trapped in trenches, they can only be moved by biologists with appropriate permit or approval from USFWS or CDFG.

- If construction areas are located in paved roads or other highly disturbed ROW, exclusion fencing shall only be constructed around the construction area when adjacent potential habitat for special-status burrowing mammals is within five feet of the work area.

Mitigation Measure BIO-4c: If potential habitat for special-status burrowing mammals (burrows, scat, tracks, or other diagnostic sign) is identified within 200 feet of construction areas; tracking, night photography, or trapping surveys of all potential habitat will be conducted to determine presence or absence of special-status mammals. Survey methods will be consistent with USFWS and CDFG protocols and other agency guidelines, such as the USFWS *Standardized Recommendations for Protection of the San Joaquin Kit Fox* (USFWS, 1997).

Mitigation Measure BIO-4d: If surveys identify special-status mammals within proposed construction areas, consultation with CDFG and USFWS will determine further measures for avoiding or reducing adverse impacts to these species. Measures will likely include seasonal restrictions, pre-construction surveys, worker environmental education sessions, biological monitoring, and revegetation programs.

Significance After Mitigation: Less than significant.

Impact BIO-5: Construction that occurs within or adjacent to upland habitat that supports special status reptiles may result in adverse impacts to these species. (Potentially Significant)

Construction activities may remove potential upland habitat for special-status reptiles (e.g. blunt-nosed leopard lizard) and result in accidental mortality of these species. The biological report prepared as directed in Mitigation Measure BIO.1a will identify potential habitat for special status reptiles in the project area. Reptiles could inadvertently be killed by construction vehicles and could be trapped in open trenches.

Mitigation Measure BIO-5a: If it is not feasible for construction activities to avoid potential upland habitat for non-listed special-status reptiles, the following measures will exclude transient reptiles from the construction area:

- Exclusion fencing shall be constructed and maintained in good condition between construction areas and potential habitat for special status reptiles. The temporary fence shall be constructed with typical silt fencing, and shall be substantial enough to deter animals from entering the work area and to prevent parking construction vehicles or staging or storage of construction materials on road shoulders adjacent to habitat. The location of the fence shall be determined by the biological monitor.

- All open trenches shall be covered and secured at the end of each work day. If trenches remain excavated overnight, temporary escape ramps shall be installed with a 2:1 slope or less or trenches shall be covered by steel plate or plywood. All excavated trenches shall be checked in the morning prior to construction to ensure that no wildlife species are inadvertently trapped.

- A biological monitor shall inspect the fences and trenches at a minimum of once a day. Any reptiles trapped in the trenches shall be moved outside the construction area.

Mitigation Measure BIO-5b: If it is not feasible for construction activities to avoid potential upland habitat for special-status reptiles (or State Fully Protected reptiles), transect or trapping surveys for these species and other measures for avoiding or reducing adverse impacts to these species will be developed through consultation with CDFG and USFWS.

Measures approved through consultation will likely include:

- seasonal restrictions
- pre-construction surveys
- worker environmental education sessions,
- biological monitoring, and
- revegetation programs.

Significance After Mitigation: Less than significant.

Impact BIO-6: Construction that occurs within or adjacent to habitat that supports special status invertebrates may disrupt these species at vulnerable stages of their life cycle, or may

eliminate host plants that are essential for completion of their life cycle. (Potentially Significant)

Elderberry shrubs, which represent habitat for the valley elderberry longhorn beetle, and other plant species which support listed butterflies or moths may be present within the project area. The biological report prepared as directed in Mitigation Measure BIO.1a will identify potential habitat for special status invertebrates in the project area. Destruction of these plants by construction equipment or vehicles may result in direct mortality of the larvae of these species and may remove host plants which are essential to the life cycle of these invertebrates.

Mitigation Measure BIO-6a: Prior to construction activities within or adjacent to potential habitat for special status invertebrate, a qualified wildlife biologist will conduct a survey for host plants occurring within 100 feet of proposed construction activities.

Mitigation Measure BIO-6b: Wherever feasible, fence off and avoid removal of plants which may support special-status invertebrates during any stage of their life cycle.

Temporary fencing shall be installed a minimum of 20 feet outside the dripline of shrubs and 50 feet from host plants occurring within 100 feet of construction areas. No encroachment into the fenced areas will be permitted. The fencing shall remain in place until all subsequent construction activities in the vicinity have been competed. Clearly visible signs shall be erected every 50 feet along the edge of avoidance areas.

Mitigation Measure BIO-6c: If avoidance of host plants is not feasible, a plan to avoid or reduce adverse impacts to sensitive invertebrate species will be developed through informal consultation with CDFG and USFWS. If a PBO has been developed for specific listed species potentially present at the site (*i.e.*, valley elderberry longhorn beetle), measures from this PBO such as seasonal restrictions, pre-construction surveys, worker environmental education sessions, biological monitoring, and revegetation programs will be included in the plan. If a survey protocol has been developed for specific listed species potentially present at the site (*i.e.* Quino checkerspot butterfly), this survey protocol will be carried out where applicable.

Significance After Mitigation: Less than significant.

Impact BIO-7: Construction activities have the potential to disturb or result in the mortality of special-status plant species. (Potentially Significant)

Construction areas which are located outside of roads and other developed areas may support special-status plant species. Construction activities may result in the disturbance or mortality of these species. The biological report prepared as directed in Mitigation Measure BIO.1a will identify potential aquatic habitat for special status plants in the project area.

Mitigation Measure BIO-7a: A qualified botanist shall conduct focused surveys for special-status plants during the period of identification for those species potentially occurring within undeveloped areas proposed for construction.

Surveys for special status plants shall comply with guidelines published by the California Department of Fish and Game (CDFG 2000). At a minimum, these guidelines recommend:

- appropriately-timed surveys prior to construction conducted by qualified botanists familiar with plants of the area;
- documentation of all plant species in the surveyed area to the extent necessary to determine whether special status species area present; and,
- preparation of a detailed report of site conditions, plant communities and associated species, including photographic documentation of any special status species and maps of their location.

Mitigation Measure BIO-7b: If special status plants are identified within 100 feet of proposed construction activities and these plants can be avoided by construction, the following protective measures would be implemented:

- Exclusion fencing shall be constructed and maintained between the plants and the construction area to create an effective buffer against all construction-related activity.
- A qualified botanist shall hold tailgate environmental education sessions with construction personnel to inform them of special status plant species in the project area. These training sessions shall also include the locations of these sensitive resources, resource avoidance, permit conditions, and possible fines for violations of state or federal environmental laws.

Mitigation Measures BIO-7c: If special status plants are identified within proposed construction areas and avoidance of these areas is infeasible, the following measures would apply:

- CDFG and USFWS, as applicable, shall be consulted to develop an acceptable plan for transplant, salvage, cultivation, or re-establishment of the species at suitable sites. In some cases involving State-listed plants, it may be necessary to obtain an incidental take permit under Section 2081 of the Fish and Game Code. The level of commitment may vary depending on the sensitivity of the species (its rarity or endangerment status), its prevalence in the area, and the current state of knowledge about overall population trends and threats to its survival.
- A detailed monitoring and reporting plan also will be a required component of any acceptable plan. Local jurisdictions (such as city or county parks or open space management, public works, or maintenance departments) may also need to coordinate to ensure that any new population locations are protected.

- For special status plants, topsoil would be salvaged and stored prior to construction, then re-spread following construction and implementation of other appropriate site restoration measures (such as final grading, soil scarification, and erosion control). In those situations where post-construction monitoring indicates topsoil respreading has not resulted in successful re-establishment of special status plants, then seeds or cuttings of the species shall be gathered from nearby populations, and shall be used to in a cultivation and planting program that is appropriate for the horticultural requirements of the species. Re-introduction of the plant would be accomplished through sowing of seeds or planting of cultivated plants in the construction area or in another suitable location for which long-term site protection can be ensured. The restored area shall be comparable in size, soil type, exposure, dominant vegetation, and other critical habitat elements to the source population. Control of exotic weeds shall be implemented to prevent degradation of the habitat for native species. All components of the revegetation plan shall be subject to approval of CDFG or USFWS.

Mitigation Measure BIO-7d: If special status plants are identified greater than 100 feet from proposed construction activities, including access routes, then standard avoidance measures shall be implemented prior to construction.

Avoidance measures include:

- staking and flagging of the plant or population to prevent accidental damage;
- staking or flagging of work area limits and access routes in proximity to the plant or population, at the direction of biological resource monitors;
- A qualified botanist shall hold tailgate meetings with construction personnel to inform them of special status plant species in the project area. These environmental education sessions shall also include showing crews the plant(s), measures to avoid it, applicable regulatory constraints and permit conditions, and possible fines for violations of state or federal environmental laws.

Significance After Mitigation: Less than significant.

Impact BIO-8: Increased sediment and pollutant loads from site development in surface runoff and stormwater could decrease habitat quality for special-status fish species in drainages and other water bodies downstream from construction areas. (Potentially Significant)

Potential impacts include increased sediment and pollutant loads in surface runoff downstream from the work site during and following grading and other construction activities. By volume, sediment is the principal pollutant component in most storm runoff and would be the primary pollutant expected from the proposed project. Sediments also transport substances such as nutrients, hydrocarbons, pesticides, and trace metals, which are conveyed to receiving waters.

Construction operations would temporarily expose soil surfaces and/or stockpiled soil to wind and water erosion, causing sedimentation that could impact water quality in downstream areas. Most of the water quality impacts would be temporary, construction-related effects. Hazardous materials associated with the proposed project would be limited to those substances typically associated with construction equipment, such as gasoline and diesel fuels, engine oil and hydraulic fluids.

With implementation of Best Management Practices (BMPs) prepared for the project Storm Water Pollution prevention Plan (SWPPP), outlined in Section 4.8, Hydrology and Water Quality, and below, construction impacts to water quality would not be expected to degrade water quality in drainages within the project area, or adversely impact special status fish species.

Mitigation Measure BIO-8a: Sempra Communications shall prepare and implement a SWPPP for the project as required by the appropriate Regional Water Quality Control Board (RWQCB) under its NPDES general permit. The SWPPP shall be updated as needed to reflect changes in the project design and site conditions. Development of the SWPPP is considered further in Section 4.8, Hydrology and Water Quality.

Terms of the SWPPP would include, but are not necessarily limited to, the mitigation measures listed below.

- Berming shall be done in the project area with sediment catchment basins in depressions and stormwater collection areas in the construction zone, using hay bales or other structures suitable to prevent sediment from being transported and deposited outside of the construction zone. Catchment basins and berms shall be incorporated into the final project design.

- Physical site modification or discharges affecting known or suspected habitat for species protected under the federal or state Endangered Species Acts shall be avoided, and if required, undertaken only under the guidance and approval of the USFWS, CDFG, or NMFS, as appropriate.

- The SWPPP will outline interim and permanent stabilization practices, including a schedule for implementation, to ensure that disturbed portions of the project site are stabilized as quickly as practicable.

- The use of sediment control basins, sediment traps, silt fences, vegetative buffer strips, or equivalent control measures shall be taken to reduce sediment and pollution loads into sensitive riparian and wetland habitats.

Significance After Mitigation: Less than significant.

Impact BIO-9: Construction activities may result in the destruction or adverse modification of areas designated by USFWS and NMFS as critical habitat for listed plant and wildlife species. (Potentially Significant)

Though construction is not likely to frequently occur within critical habitat areas, the project area includes critical habitat designated by USFWS and NMFS for listed plants and wildlife species (see regional discussions above for critical habitat located within each project area region). Construction activities within or adjacent to these areas may temporarily remove critical habitat or reduce the quality of these areas and habitat value to listed species. The biological report prepared as directed in Mitigation Measure BIO.1a will identify construction activities which are proposed within or adjacent to USFWS and NMFS-designated critical habitat in the project area.

Mitigation Measure BIO-9a: Wherever feasible, subsequent activities will be designed to avoid construction activities within or adjacent to critical habitat as designated by USFWS and NMFS. If avoidance is not feasible, informal consultation with USFWS and CDFG will determine a mitigation strategy to ensure that construction activities do not result in the destruction and adverse modification of the value of the habitat or affect the survival and recovery of any listed plant and wildlife species. Measures are likely to include seasonal restrictions, reduced construction corridors, pre-construction surveys, worker environmental education sessions, biological monitoring, and re-vegetation programs.

Significance after Mitigation: Less than significant.

IMPACTS WITH POTENTIAL TO ADVERSELY AFFECT RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITIES

Impact BIO-10: Construction activities have the potential to adversely affect sensitive natural communities, including but not limited to perennial and alkali grasslands, coastal scrub, riparian forest, riparian woodland, riparian scrub, freshwater marsh (freshwater emergent marsh), saltmarsh (saline emergent wetland), and seasonal wetlands including vernal pools. (Potentially Significant)

Trenching activities have the potential to result in temporary or permanent removal or disturbance of sensitive natural communities within upland areas. The biological report prepared for each subsequent action as directed in Mitigation Measure BIO-1a will identify all sensitive natural communities in the project area.

Mitigation Measure BIO-10a: Removal of sensitive natural communities will be avoided wherever feasible. If avoidance of this habitat is not feasible, only the minimum area necessary to complete the work will be subject to disturbance. Consultation with USFWS, CDFG, and other agencies, as applicable, will determine appropriate compensatory mitigation including habitat restoration, revegetation, conservation easements, and habitat replacement ratios both on-site and off-site.

A mitigation plan will be prepared to describe in detail the measures to be implemented to compensate the loss of sensitive natural communities as a result of any subsequent action. The plan will be a detailed outline of the steps to be undertaken toward replacement of the habitat, and will include, at a minimum; the following elements:

- documentation of the type, size and location of the affected area;
- discussion of the regional sensitivity of the natural community;
- goals and objectives of the mitigation effort, including the type, size and location of the restored or enhanced natural community;
- identification and, if applicable, acquisition of suitable sites or establishment of conservation easements for those sites;
- procurement of appropriate plant materials, including a consideration of the use of local genetic stock;
- planting plans showing the location, quantity and of container size of each species to be planted, and the timing and methods of installation;
- site preparation requirements, including grading and auguring;
- methods to maximize survival of plantings, including plant protection (*i.e.*, tree tubes or cages), mulch, and fertilizer;
- irrigation plans, including water source, methods of delivery to each plant, timing and rate of application, criteria for removal of irrigation;
- site protection to prevent damage of the restored or enhanced area from vehicles, people, livestock;
- establishment monitoring to be conducted for the first year following planting, when plants are most vulnerable to drought stress, disease, damage from grazing or browsing, vandalism, etc.
- maintenance activities and schedule to ensure continued functioning of the irrigation system and removal of weeds
- identification of the people to be contacted for questions regarding the implementation of the mitigation plan, who also will be responsible for submittal of annual monitoring reports.

Significance After Mitigation: Less than significant.

IMPACTS WITH POTENTIAL TO ADVERSELY AFFECT FEDERALLY PROTECTED WETLANDS AS DEFINED BY SECTION 404 OF THE CLEAN WATER ACT OR WATERS OF STATE AS DEFINED BY SECTION 1600 OF THE CALIFORNIA FISH AND GAME CODE

Impact BIO-11: Construction activities could potentially result in direct impacts to waters of the United States or waters of the state, including wetlands. (Potentially Significant)

Installation of fiber optic cable facilities may include trenching and boring activities through or under seasonal wetlands, seasonal streams, and other drainages in the project area. These activities may result in temporary impacts or placement of dredged or fill material into water bodies which are under the jurisdiction of the Corps. The biological report prepared as directed in Mitigation Measure BIO.1a will identify potential jurisdictional waters of the United States in the project area.

Mitigation Measure BIO-11a: If construction activities will result in the placement of dredged or fill material into waters of the U.S. or waters of the State , the following measures will apply:

- A formal delineation of jurisdictional features shall be conducted by a qualified biologist. The delineation shall be submitted to the Corps for verification and a Department of the Army permit shall be obtained. In addition, Water Quality Certification shall be obtained from the RWQCB.
- If necessary, a Streambed Alteration Agreement shall be obtained from CDFG.
- Construction operations shall be conducted during the dry season to minimize erosion.
- The top layer of the drainage or wetland bottom shall be stockpiled and preserved during construction. After the pipeline has been installed, the stockpiled material shall be placed back into the drainage or wetland feature to return the beds to their original composition.
- Crossings shall be oriented as close to perpendicular (90 degree angle) to the drainage or seasonal wetland as feasible.
- Disturbed drainages and seasonal wetland habitat shall be revegetated with the appropriate plant species as soon as feasible after completion of construction activities.
- Boring activities shall be closely monitored for loss of boring fluid. If a leak occurs, boring activities will be immediately halted until boring fluid is contained.

Significance After Mitigation: Less than significant.

IMPACTS WITH POTENTIAL TO CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES

Impact BIO-12: Construction activities have the potential to result in adverse impacts to trees protected by local ordinances. (Potentially Significant)

Cable installation activities may result in the removal of trees considered to be heritage trees or otherwise protected by local ordinances. Construction activities adjacent to protected trees may result in damage to roots and limbs and ultimately result in mortality of these trees. The biological report prepared as directed in Mitigation Measure BIO-1a will identify potential protected trees in the project area.

Mitigation Measure BIO-12a: Mitigation for project impacts to protected trees shall include measures for tree protection, revegetation, compensation and monitoring consistent with local ordinance requirements. Sempra Communications will develop and implement a Tree Protection Plan, where required in coordination with local jurisdictions, to prevent impacts to protected trees adjacent to construction areas, and a Tree Revegetation Plan to mitigate for protected trees removed during project construction.

Significance After Mitigation: Less than significant.

IMPACTS WITH POTENTIAL TO CONFLICT WITH THE PROVISIONS OF AN APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN

Impact BIO-13: Construction activities have the potential to conflict with provisions of approved Habitat Conservation Plans. (Less than Significant)

Several multi-species HCPs are either under development or have been prepared in the general project region. These HCPs provide a framework for the analysis of potential impacts of projects on a suite of special status species or sensitive habitats. Subsequent activities which involve fiber optic cable installation in paved city streets and road shoulders may not conflict with conservation strategies in HCPs covering portions of the project area. However, construction activities within undeveloped areas have the potential to conflict with HCPs.

During development of a work plan, Sempra Communications will review local city and county policies, ordinances and conservation plans, and comply with all applicable requirements. This may include submittal of plans for review and approval by local agencies.

Mitigation Measure: No mitigation required

Impact BIO-14: Construction activities on protected lands may conflict with policies and regulations established by land management agencies to protect biological resources in these areas. (Less than Significant)

Construction activities may occur on lands regulated by Federal, State, regional and local land management agencies. These lands may include national parks, national forests, regional and state parks, wildlife refuges, marine sanctuaries, and military bases with particular regulations or policies regarding conservation and management of biological resources. A discussion of specific land management agencies that regulate land within the project area is presented in the Land Use and Planning section of this Chapter.

Construction activities on protected lands would be subject to all applicable regulations or policies of the appropriate land management agencies.

Mitigation Measure: No mitigation required

REFERENCES – Biological Resources

California Burrowing Owl Consortium. Burrowing Owl Survey Protocol and Mitigation Guidelines. 1997. (available online from the Santa Cruz Predatory Bird Research Group, Santa Cruz, CA. http://www2.ucsc.edu/~scpbrg)

California Department of Fish and Game (CDFG). 1999. *List of California Terrestrial Communities Recognized by the California Natural Diversity Data Base.* February 1999 edition.

CDFG. *Guidelines For Assessing Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities,* revised May 8, 2000.

CDFG. California Natural Diversity Data Base, USGS 7.5-minute topographic quadrangles[11]. California Department of Fish and Game Natural Heritage Division. Sacramento, CA, January 2002a.

CDFG. *Special Animals List*. California Department of Fish and Game Wildlife and Habitat Data Analysis Branch. Sacramento, CA, January 2002.

California Native Plant Society (CNPS), *Electronic Inventory of Rare and Endangered Vascular Plants of California*, 7.5 minute topographic quadrangles[12]. January, 2002.

[11] Please refer to Appendix F for a list of USGS quadrangles included within the project area.

California Public Utilities Commission (CPUC). *Williams Communications Group Fiber Optic Cable System Installation Project-California Network Initial Study/Draft Mitigated Negative Declaration.* August, 1999.

County of Riverside. http://www.co.riverside.ca.us/county_info/history.asp. 2002.

Davis, F. W., D. M. Stoms, A. D. Hollander, K. A. Thomas, P. A. Stine, D. Odion, M. I. Borchert, J. H. Thorne, M. V. Gray, R. E. Walker, K. Warner, and J. Graae. *The California Gap Analysis Project--Final Report*. University of California, Santa Barbara, CA. 1998. http://www.biogeog.ucsb.edu/projects/gap/gap_rep.html

EDAW. *El Paso Global Networks Telecommunication System Project Draft Initial Study/Mitigated Negative Declaration.* October, 2001a.

EDAW. *Broadwing Communications Services, Inc. Fiber Optic Expansion Project Final Initial Study/Mitigated Negative Declaration.* December, 2001b.

Ehrlich, P.R., D.S. Dobkin, and 0. Wheye. *The Birder's Handbook: A Field Guide to the Natural History of North American Birds.* New York, Simon and Schuster. 1988.

Environmental Science Associates (ESA). *Proponent's Environmental Assessment for Metromedia Fiber Network Services' Application to Modify its Certificate of Public Convenience and Necessity.* 2000a.

ESA. *Metromedia Fiber Network Services, Inc. Application for the Second Modification of its Certificate of Public Convenience and Necessity for the Sacramento and San Diego Networks.* 2000b.

ESA. *Sigma Networks Applications to Modify its Certificate of Public Convenience and Necessity for the San Francisco Bay Area and Los Angeles Basin.* 2001.

Harrison, H. *Western Bird's Nests.* Peterson Field Series, No. 25, Houghton Mifflin, Boston, MA. 1979.

Hickman, J.C., (Ed.) *The Jepson Manual: Higher Plants of California.* University of California Press, Berkeley, California. 1993.

Holland, R.F. *Preliminary Descriptions of the Terrestrial Natural Communities of California*, Department of Fish and Game, Sacramento, CA. 1986.

Jameson, E.W. and H.J. Peters. *California Mammals.* University of California Press, Berkeley, California. 1988.

[12] Please refer to Appendix F for a list of USGS quadrangles included in the project area.

Larsen, S.S., K.E. Swaim, and S.M. McGinnis. *Innate response of the San Francisco Garter Snake and the Alameda Whipsnake to Specific Prey Items*. Trans. West. Sect. Wildl. Soc. 27:37-41. 1991.

Mayer, K.E. and W.F. Laudenslayer (Eds.). *A Guide to Wildlife Habitats of California*, California Department of Fish and Game, Sacramento, CA, 166 pp. 1988.

Miles, S.R. and C.B. Goudey. 1998. Ecological Subregions of California, Section and Subsection descriptions. U.S. Forest Service, Pacific Southwest Region, San Francisco CA. Prepared in cooperation with: USDA, Natural Resources Conservation Service and USDI, Bureau of Land Management. Internet publication R5-EM-TP-005-NET. http://166.5.1.221/ecoregions/title_page.htm

Munz, P.E., and D. Keck. *A California Flora*. University of California Press, Berkeley, CA. 1968.

National Geographic, *Field Guide to the Birds of North America*, Third Edition. National Geographic Society, Washington D.C. 1987.

National Marine Fisheries Service (NMFS) and National Oceanic and Atmospheric Administration (NOAA). Designated Critical Habitat; Sacramento River Winter-Run Chinook Salmon: Final Rule. Federal Register Vol. 58 No. 114, June 16, 1993.

NMFS and NOAA. Designated Critical Habitat: Critical Habitat for 19 Evolutionarily Significant Unites of Salmon and Steelhead in Washington, Oregon, Idaho, and California: Final Rule. Federal Register Vol. 65 No. 32, February 16, 2000.

Parsons Brinkerhoff Network Services, Inc. (PB) and ESA. *Level 3 Communications Fiber Optic Cable Oakland to Atascadero City Pair Pre-Construction Notification for Nationwide Permit(s) and Application for Streambed Alteration Agreement(s)*. December, 1998.

Parsons Brinkerhoff Network Services, Inc. (PB) and ESA. *Level 3 Communications Fiber Optic Cable Sacramento to Vacaville City Pair Pre-Construction Notification for Nationwide Permit(s) and Application for Streambed Alteration Agreement(s)*. January, 1999.

Parsons Brinkerhoff Network Services, Inc. (PB) and ESA. *Level 3 Communications Fiber Optic Cable Martinez to Oakland City Pair Pre-Construction Notification for Nationwide Permit(s) and Application for Streambed Alteration Agreement(s)*. February, 1999.

Recon. *Supplement to Sempra Communications Proponent's Environmental Assessment Application for Certificate of Public Convenience and Necessity for Facilities-Based and Resale Competitive Local Exchange, Access and Inter-exchange Services*. Prepared for Sempra Communications. 2000.

National Marine Fisheries Service and National Oceanic Atmospheric Administration. Designated Critical Habitat: Critical Habitat for 19 Evolutionarily Significant Units of Salmon and Steelhead in Washington, Oregon, Idaho, and California: Final Rule. Federal Register Vol. 65, No. 32, February 16, 2000.

Sawyer, J.O. and T. Keeler-Wolf. *A Manual of California Vegetation.* California Native Plant Society. Sacramento, CA. 1995.

Skinner and Pavlik (eds.), *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California,* California Native Plant Society, 1994.

State of California Public Utilities Commission. *Broadwing Communications Services, Inc. California Fiber Optic Expansion Project Final Initial Study/Mitigated Negative Declaration*. 2001.

Stebbins, R.C. *Western Reptiles and Amphibians*. Peterson Field Guides, Houghton Mifflin Company, Boston. 336 pp. 1985.

Swaim, K.E. Aspects of the ecology of the Alameda whipsnake *(Masticophis lateralis euryxanthus)* Masters Thesis, California State University, Hayward, CA. 140 pp. 1994.

Swaim, K.E. Site Assessment for the Alameda Whipsnake at the proposed Leona Quarry Project Site. Report submitted to ESA, September, 2001.

U.S. Army Corps of Engineers. U.S. *Army Corps of Engineers Wetland Delineation Manual,* Final Report, Department of the Army Waterways Experiment Station, Vicksburg, *Mississippi*. January 1987.

U.S. Fish and Wildlife Service (USFWS). Listing of the Palos Verdes Blue Butterfly as an Endangered Species with Critical Habitat. Federal Register 45: 44939-44942, July 2, 1980a.

USFWS. Listing of the Valley Elderberry Longhorn Beetle as a Threatened Species with Critical Habitat. Federal Register 45:52803-52807, August 8, 1980b.

USFWS. Determination of Endangered Status and Critical Habitat for Fresno Kangaroo Rat: Final Rule. Federal Register 50: 4222-4226, January 30, 1985.

USFWS. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Coastal California Gnatcatcher, March 30, 1993.

USFWS. Endangered and Threatened Wildlife and Plants: Threatened Status for Alameda Whipsnake *(Masticophis lateralis euryxanthus):* Final Rule. Federal Register Vol. 62, No. 234, December 5, 1997a.

U.S. Fish and Wildlife Service (USFWS). Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance. Sacramento Field Office, Endangered Species Division. April 1, 1997b.

USFWS. Recovery Plan for Upland Species of the San Joaquin Valley, California, September, 1998.

USFWS. Guidelines for Conducting and Reporting Inventories for Federally Listed, Proposed and Candidate Plants, January, 2000a.

USFWS. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the Peninsular Bighorn Sheep: Proposed Rule. Federal Register Vol. 65 No. 129, July 5, 2000b.

USFWS. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the Alameda whipsnake *(Masticophis lateralis euryxanthus):* Final Rule. Federal Register Vol. 65 No. 192, October 3, 2000c.

USFWS. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the San Diego Fairy Shrimp (*Branchinecta sandiegoenis*): Final Rule. Federal Register Vol. 65 No. 205, October 23, 2000d.

USFWS. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the Coastal California Gnatcatcher: Final Rule. Federal Register Vol. 65 No. 206, October 24, 2000e.

USFWS. Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for the Tidewater Goby: Final Rule. Federal Register Vol. 65 No. 224, November 20, 2000f.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Designation of Critical Habitat for the San Bernardino Kangaroo Rat: Proposed Rule. Federal Register Vol. 65 No. 237, December 8, 2000g.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Determination of Critical Habitat for the Quino Checkerspot Butterfly: Proposed Rule. Federal Register Vol. 66 No. 26, February 7, 2001a.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Designation of Critical Habitat for the *Chorizanthe pungens var. pungens* (Monterey Spineflower): Proposed Rule. Federal Register Vol. 66 No. 32, February 15, 2001b.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Designation of Critical Habitat for the *Chorizanthe robusta var. robusta* (Robust Spineflower): Proposed Rule. Federal Register Vol. 66 No. 32, February 15, 2001c.

USFWS. Endangered and Threatened Wildlife and Plants: Final Designation of Critical Habitat for the Arroyo Toad; Correction: Final rule. Federal Register Vol. 66 No. 45, March 7, 2001d.

USFWS. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the California Red-legged Frog in Alameda, Butte, Contra Costa, El Dorado, Fresno; Kem, Los Angeles, Marin, Mariposa, Merced, Monterey, Napa, Plumas, Riverside, San Benito, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Sonoma, Stanislaus, Tehama, Toulumne, and Ventura Counties, California: Final Rule. Federal Register Vol. 66, No. 49, March 13, 2001e.

USFWS. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the Bay Checkerspot Butterfly (*Euphydryas editha bayensis*); Final Rule. Federal Register Vol. 66 No. 83, April 30, 2001f.

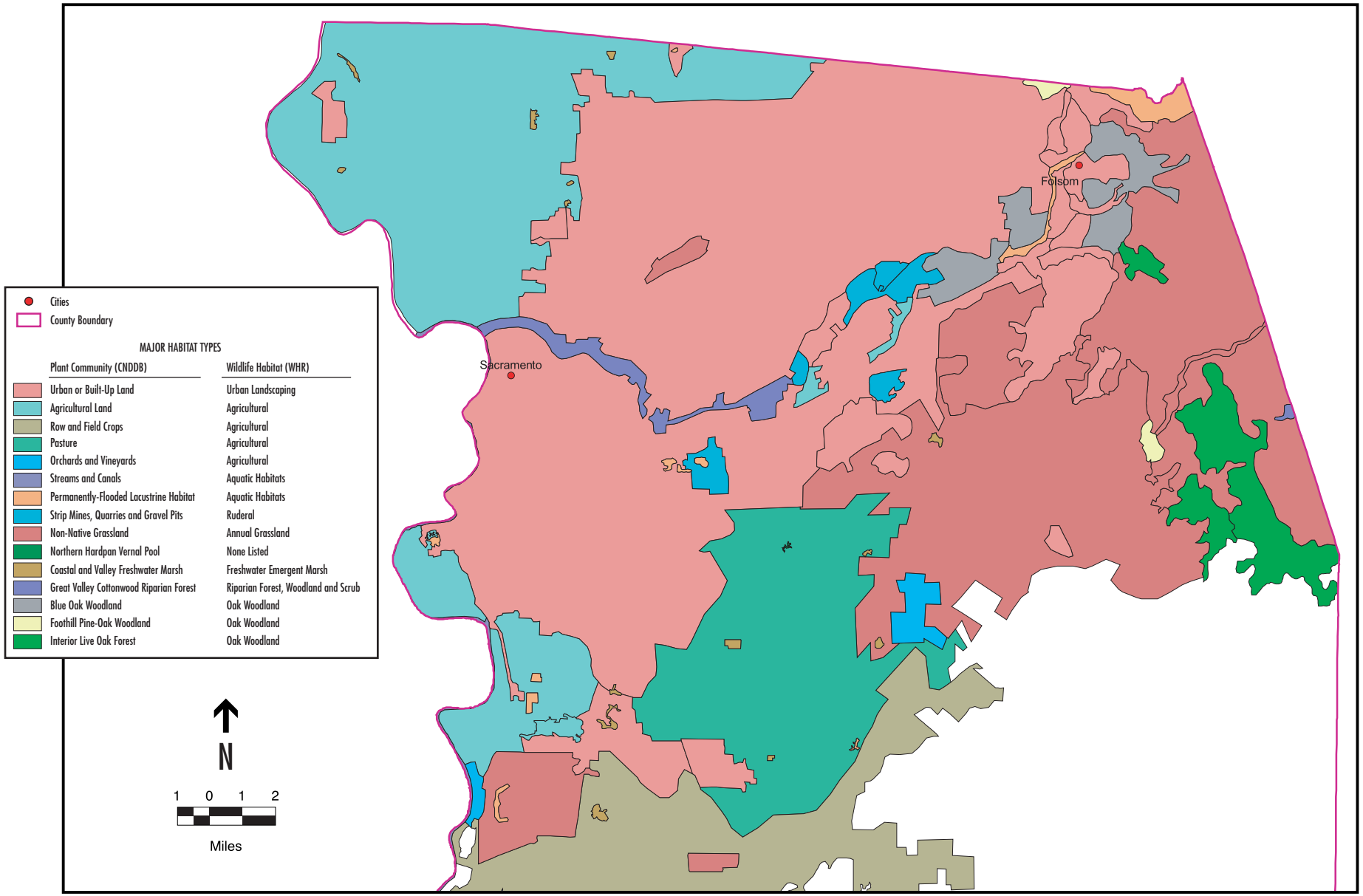
USFWS. Endangered and Threatened Wildlife and Plants: Final Designation of Critical Habitat for the Riverside Fairy Shrimp: Final Rule. Federal Register Vol. 66 No. 104, May 30, 2001g.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Designation of Critical Habitat for the *Deinandra conjugens* (Otay tarplant): Proposed Rule. Federal Register Vol. 66 No. 114, June 13, 2001h.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Designation of Critical Habitat for *Cirsium loncholepis* (La Graciosa thistle), *Eriodictyon capitatum* (Lompoc yerba santa), and *Deinandra increscens ssp. villosa* (Gaviota tarplant): Proposed Rule. Federal Register Vol. 66 No. 221, November 15, 2001i.

USFWS. Endangered and Threatened Wildlife and Plants: Proposed Designation of Critical Habitat for *Holocarpha macradenia* (Santa Cruz tarplant): Proposed Rule. Federal Register Vol. 66 No. 221, November 15, 2001j.

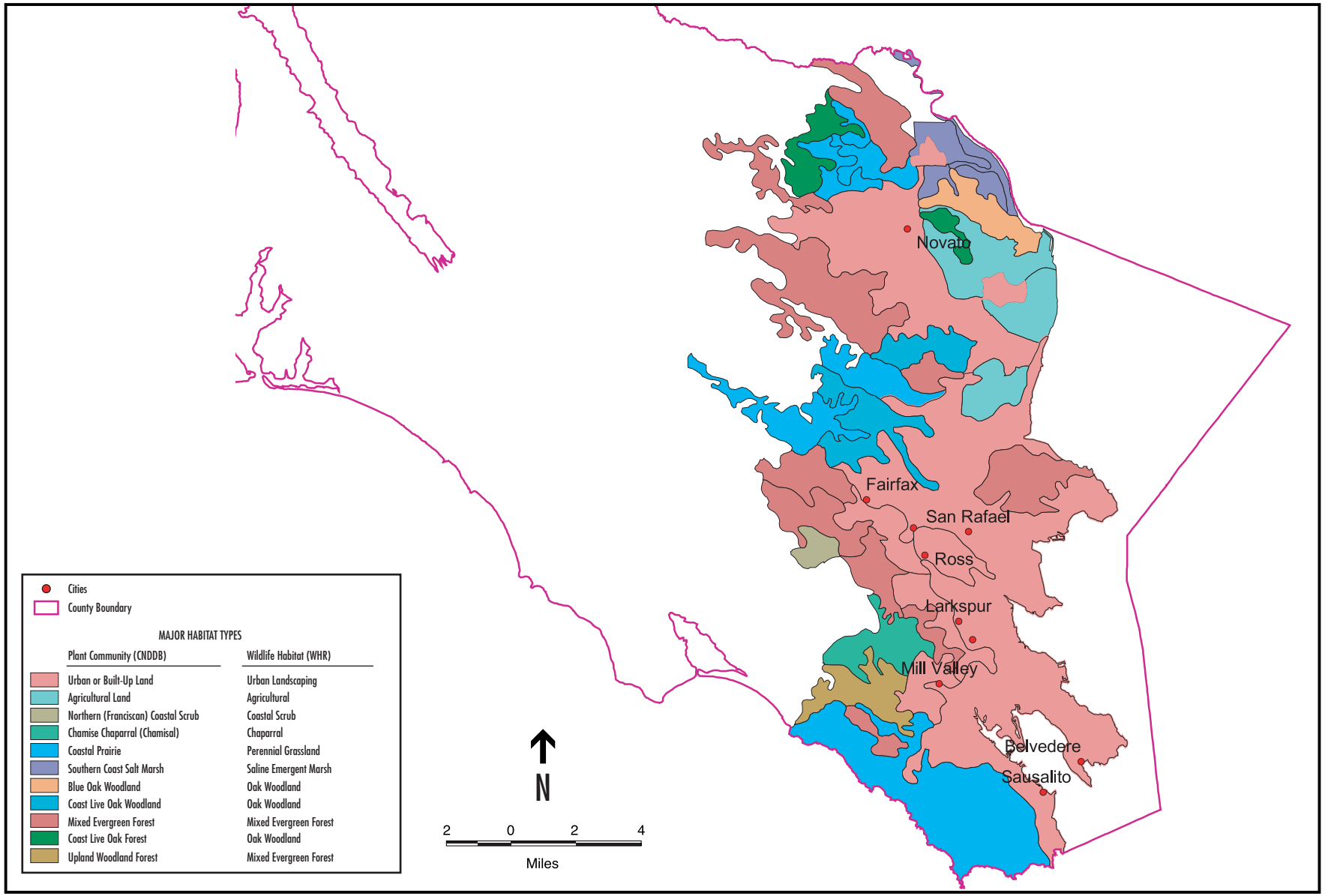
USFWS. Species List for Sempra Communications Project. Letter from Jan C. Knight (Chief, Endangered Species Division) to C. Rogers. March 29, 2002.



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

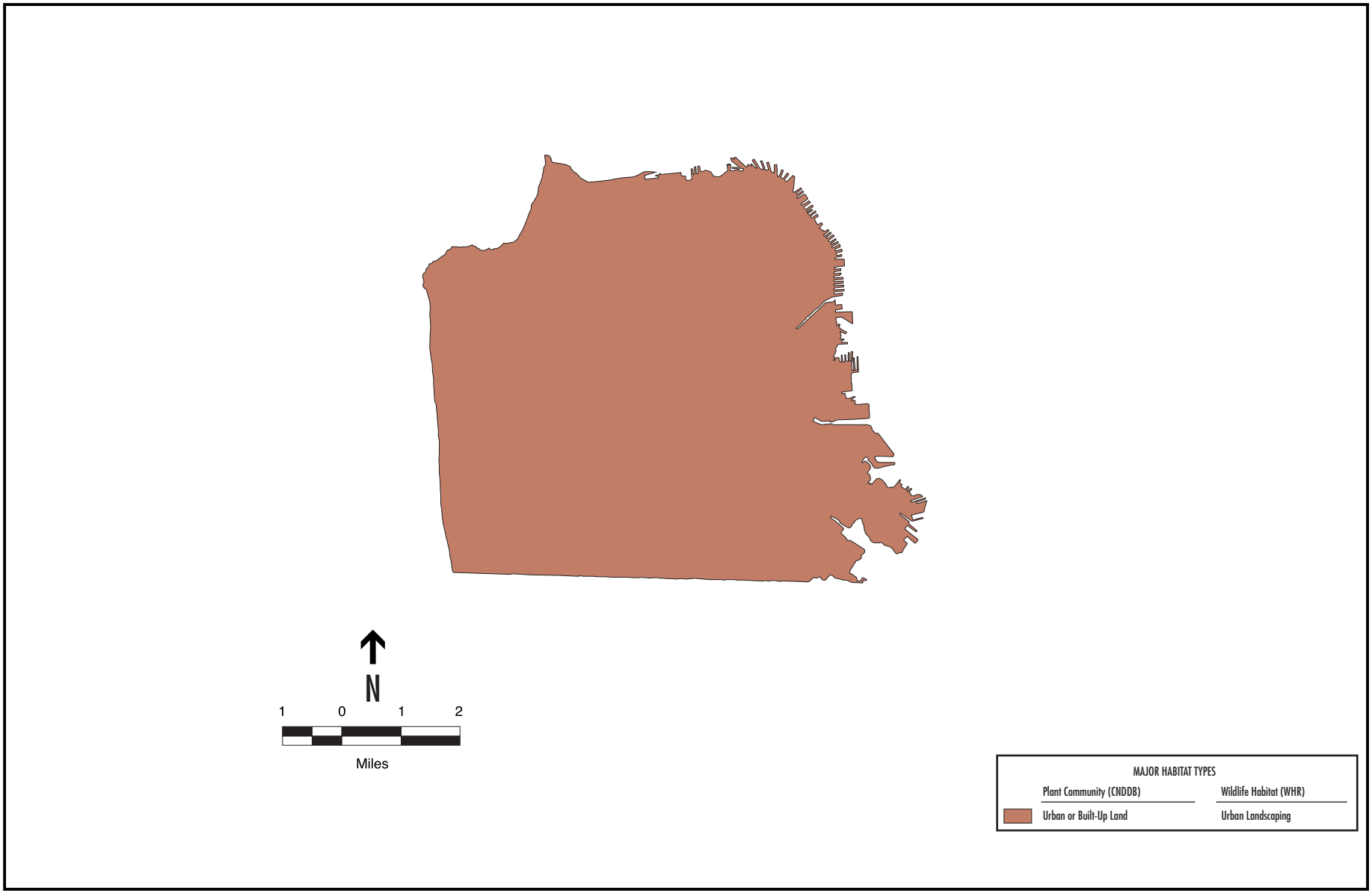
SOURCE: Land-Cover for California, California Gap Analysis 1998
and Environmental Science Associates, 2002

Figure 4.4-1
Sacramento County
Project Vicinity Habitats



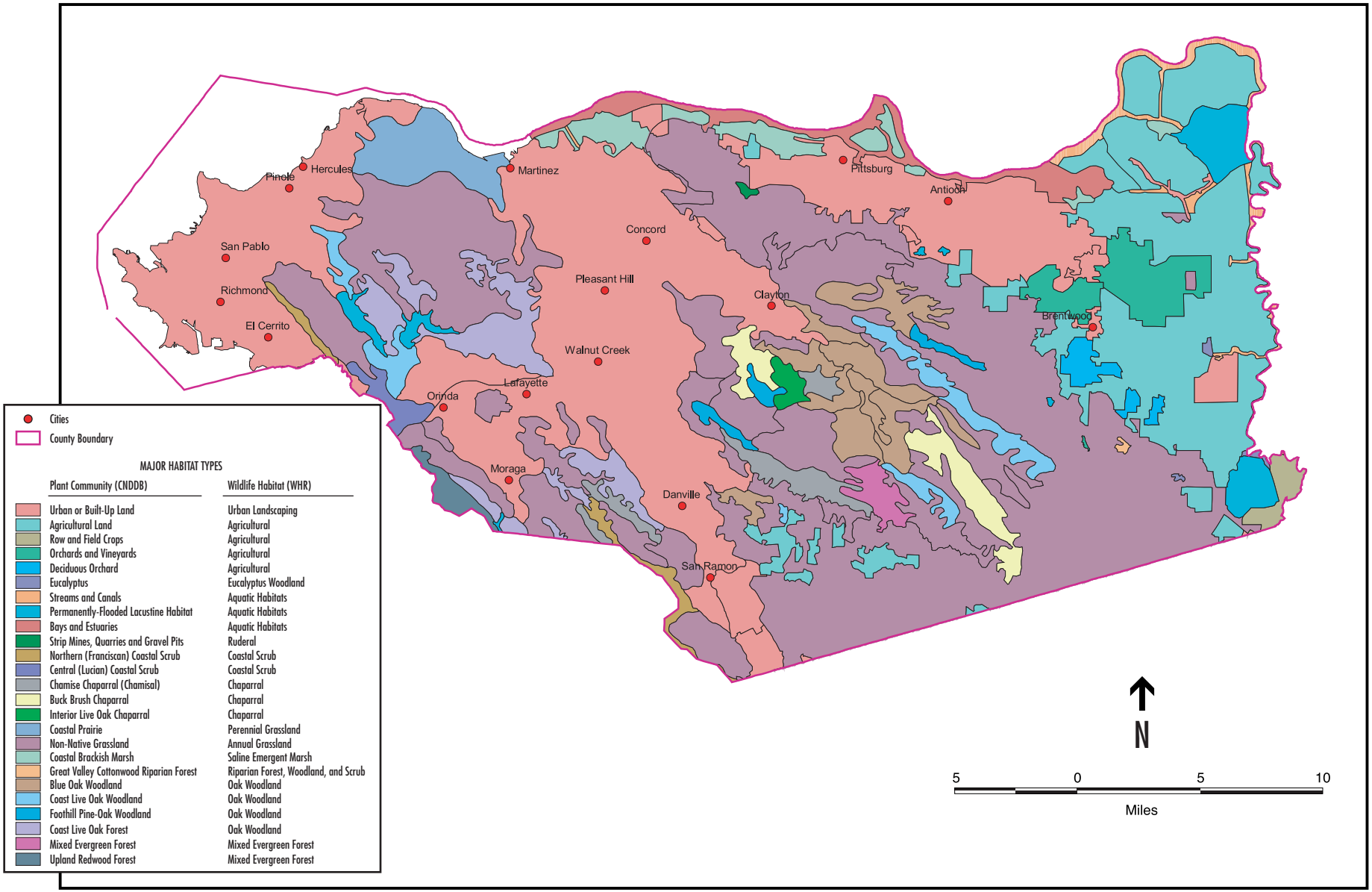
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-2
Marin County
Project Vicinity Habitats



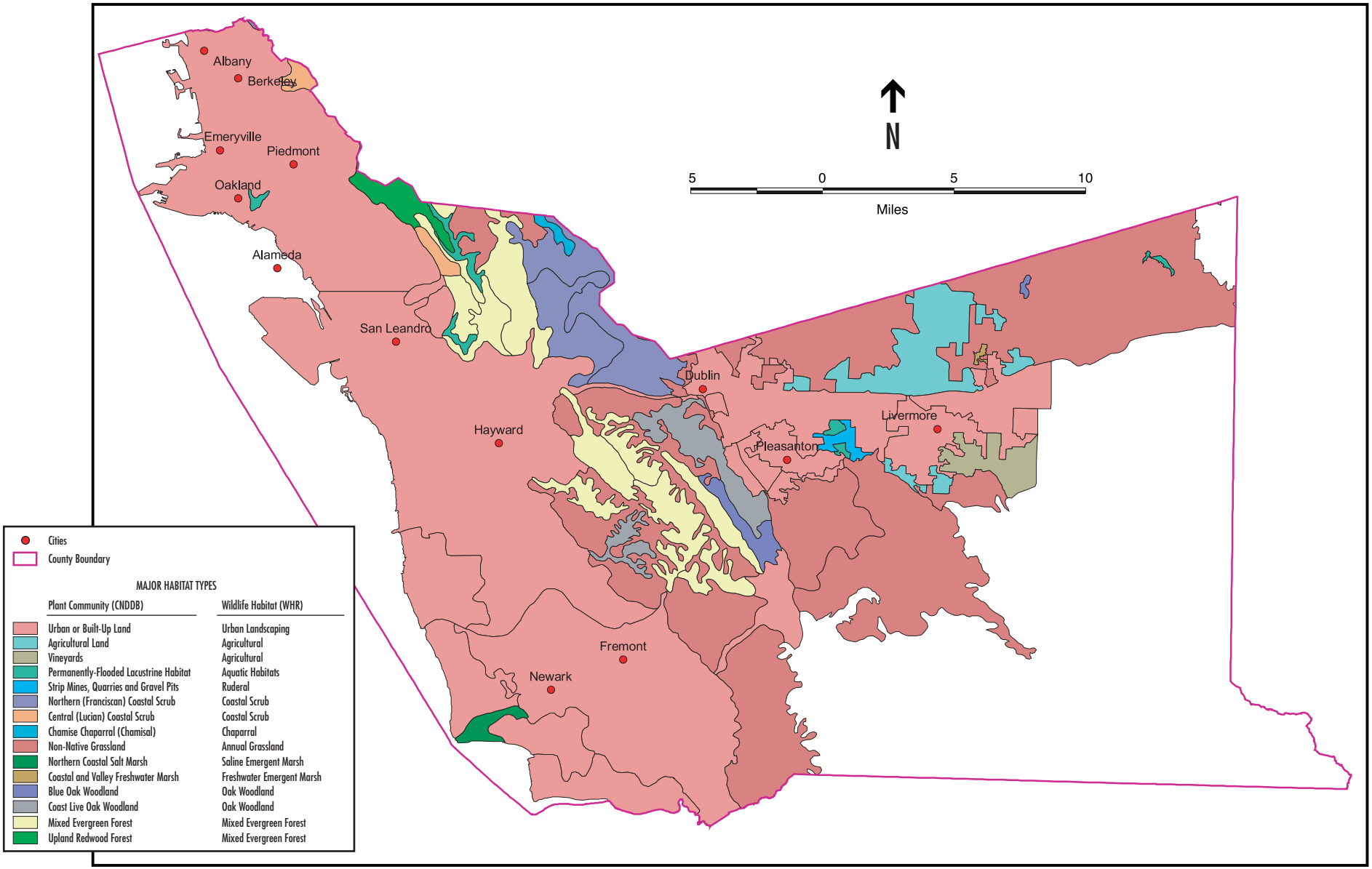
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-3
San Francisco County
Project Vicinity Habitats



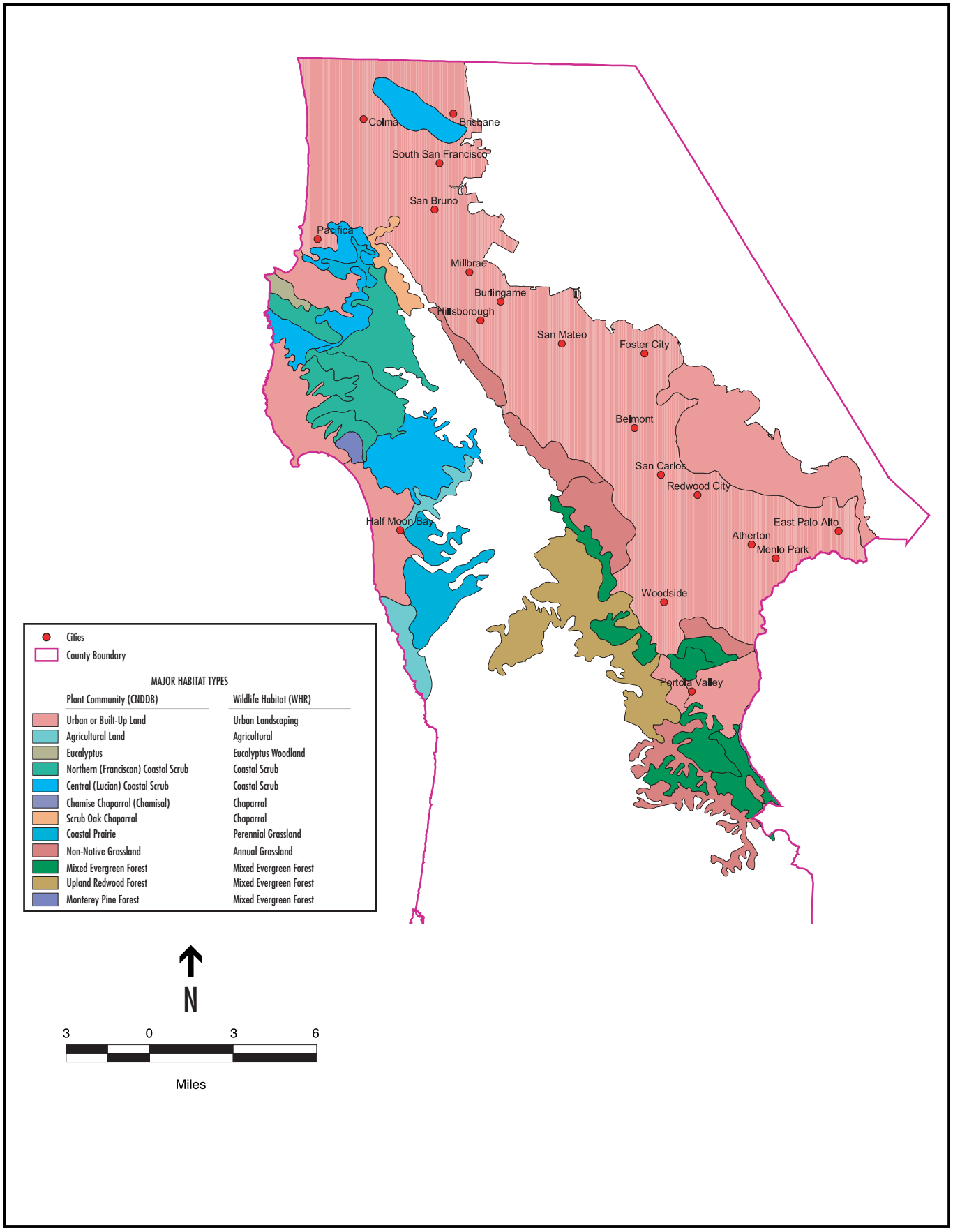
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-4
Contra Costa County
Project Vicinity Habitats



SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-5
Alameda County
Project Vicinity Habitats



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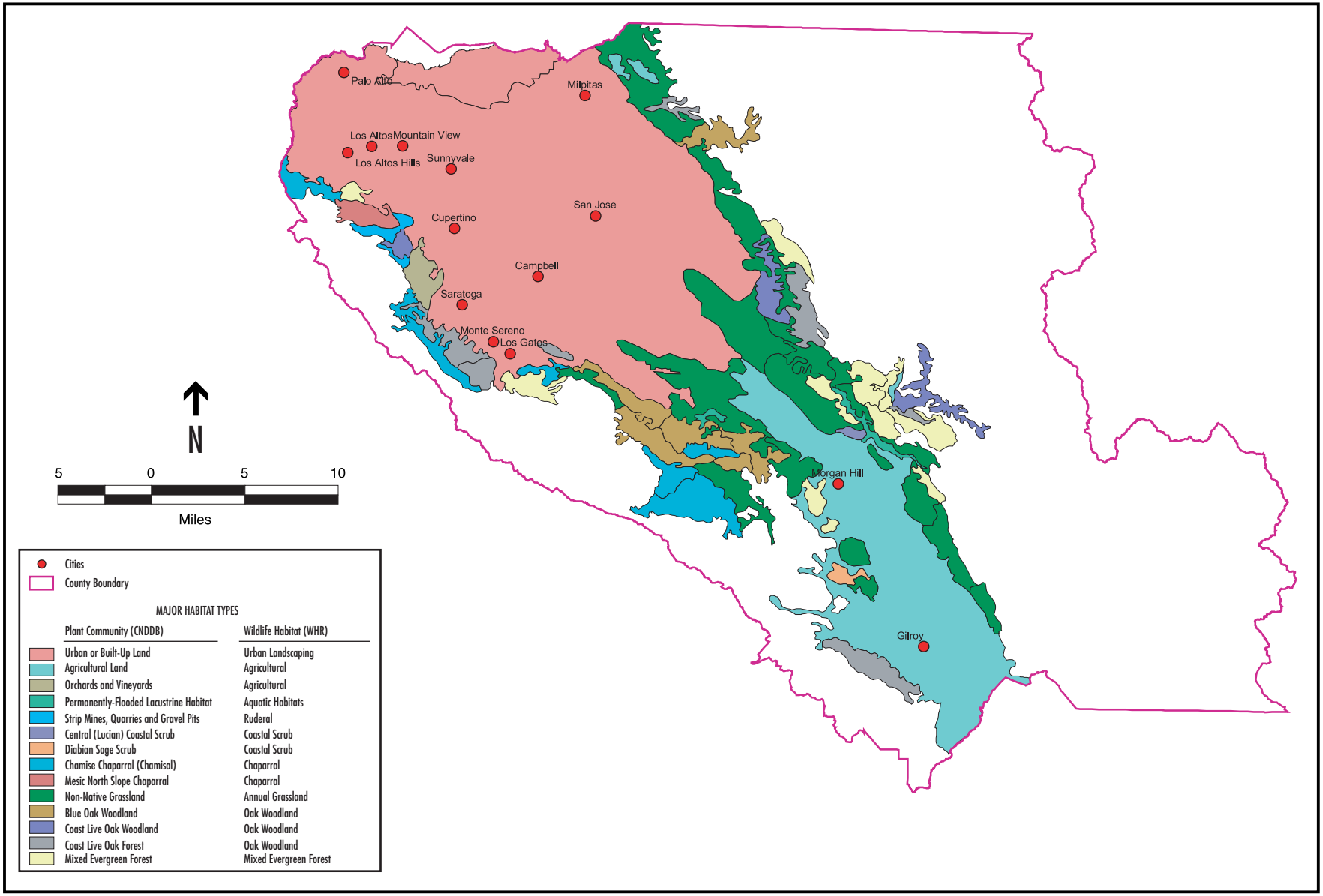
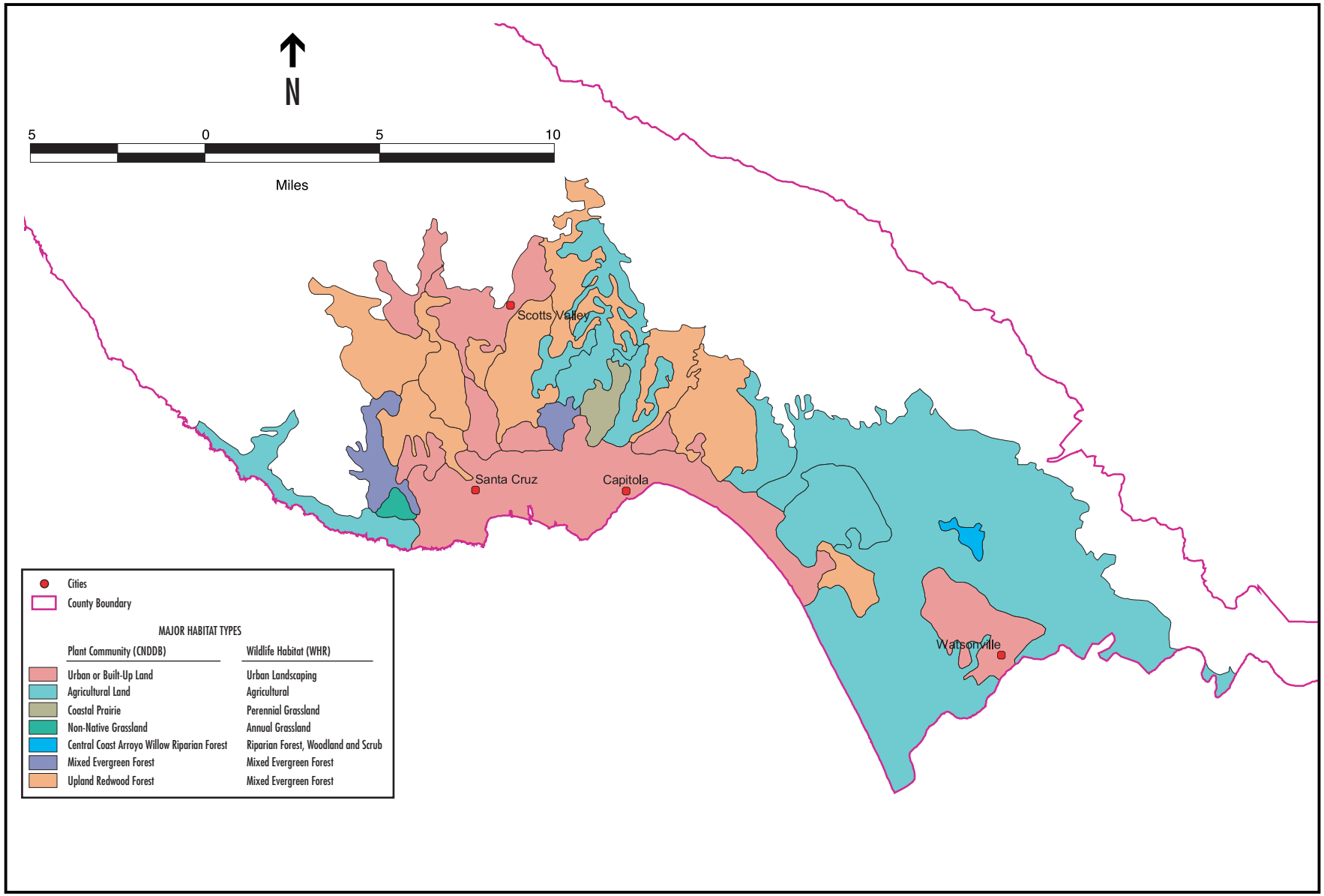
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-6
San Mateo County
Project Vicinity Habitats



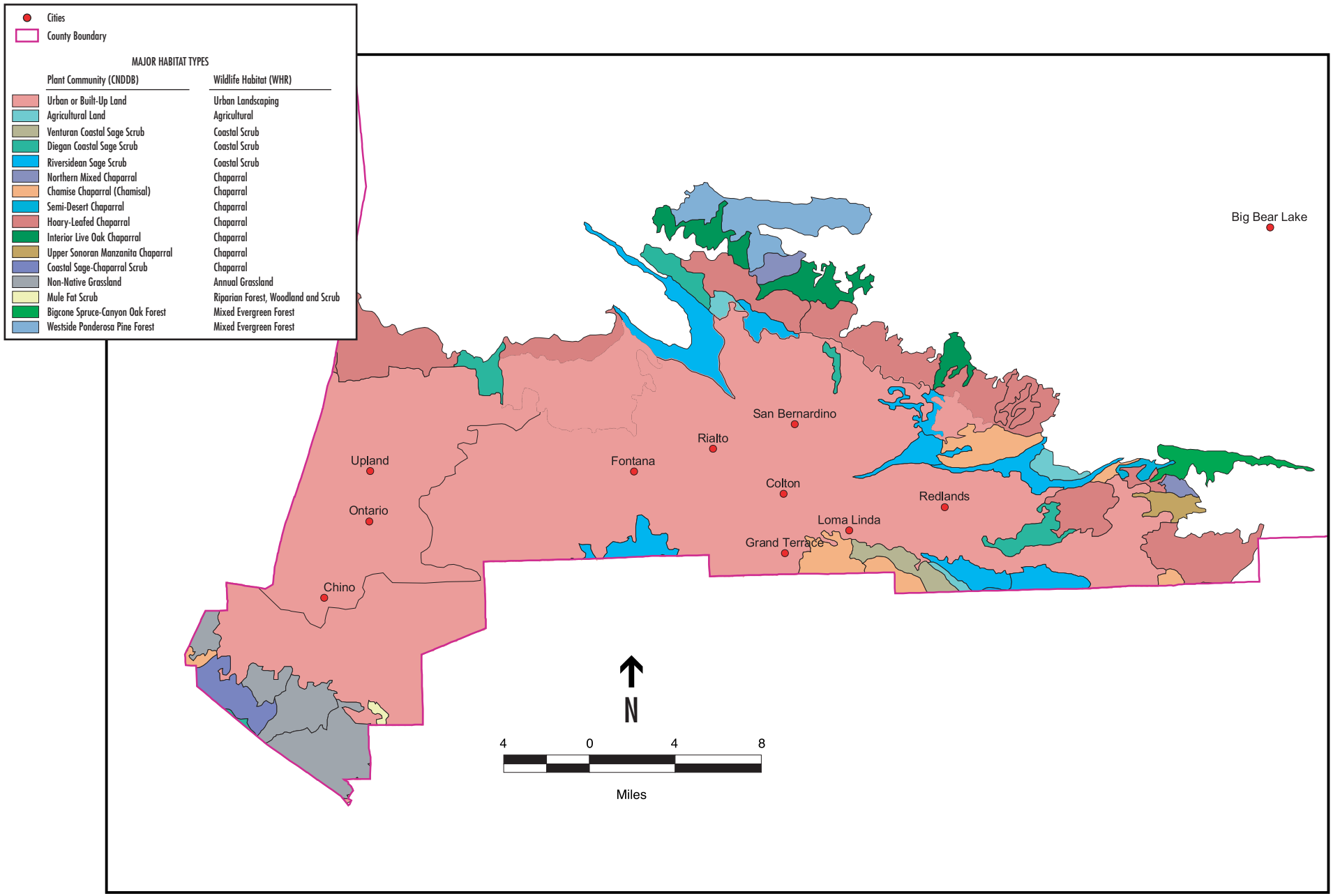
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-7
Santa Clara County
Project Vicinity Habitats



SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

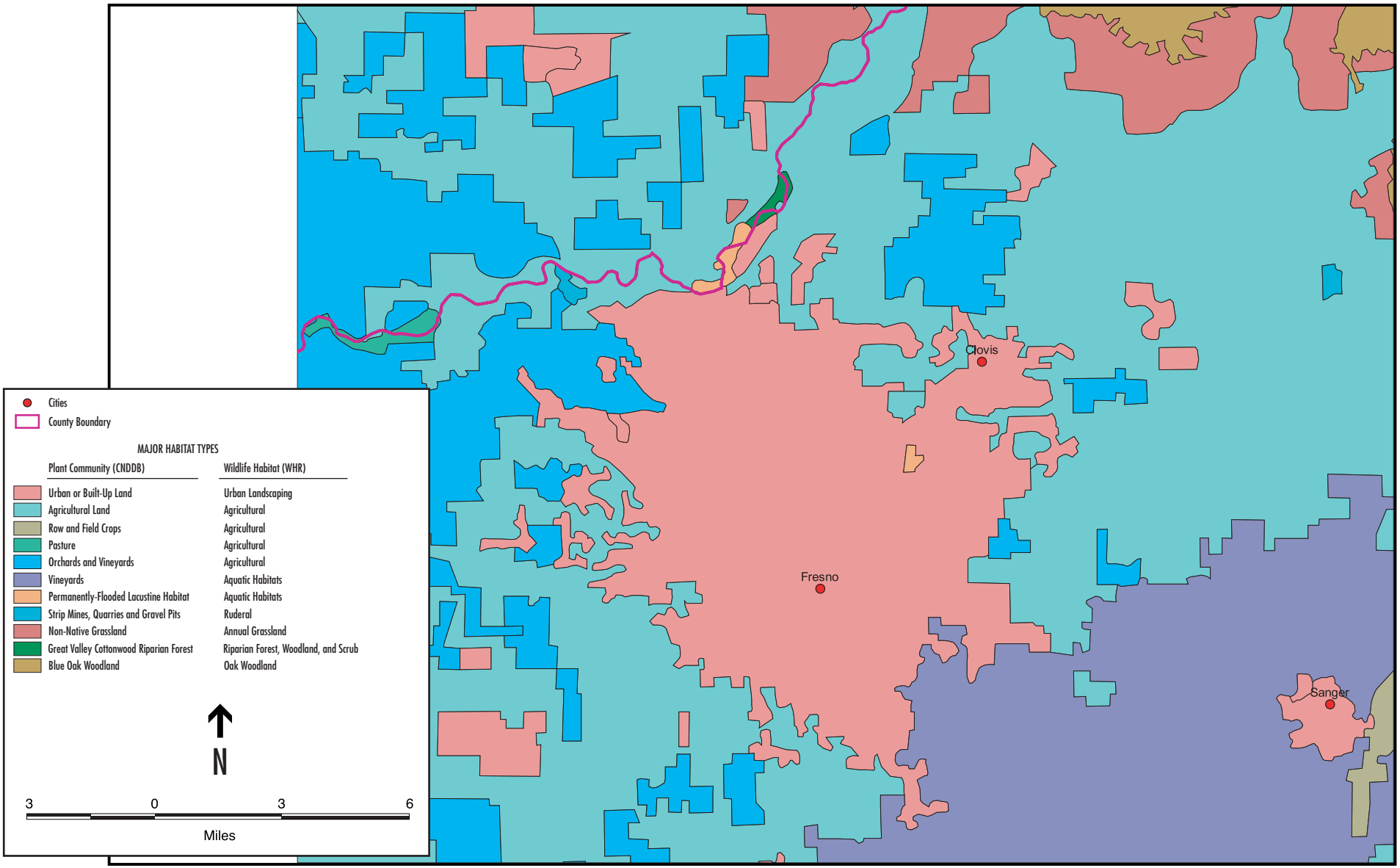
Figure 4.4-8
Santa Cruz County
Project Vicinity Habitats



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

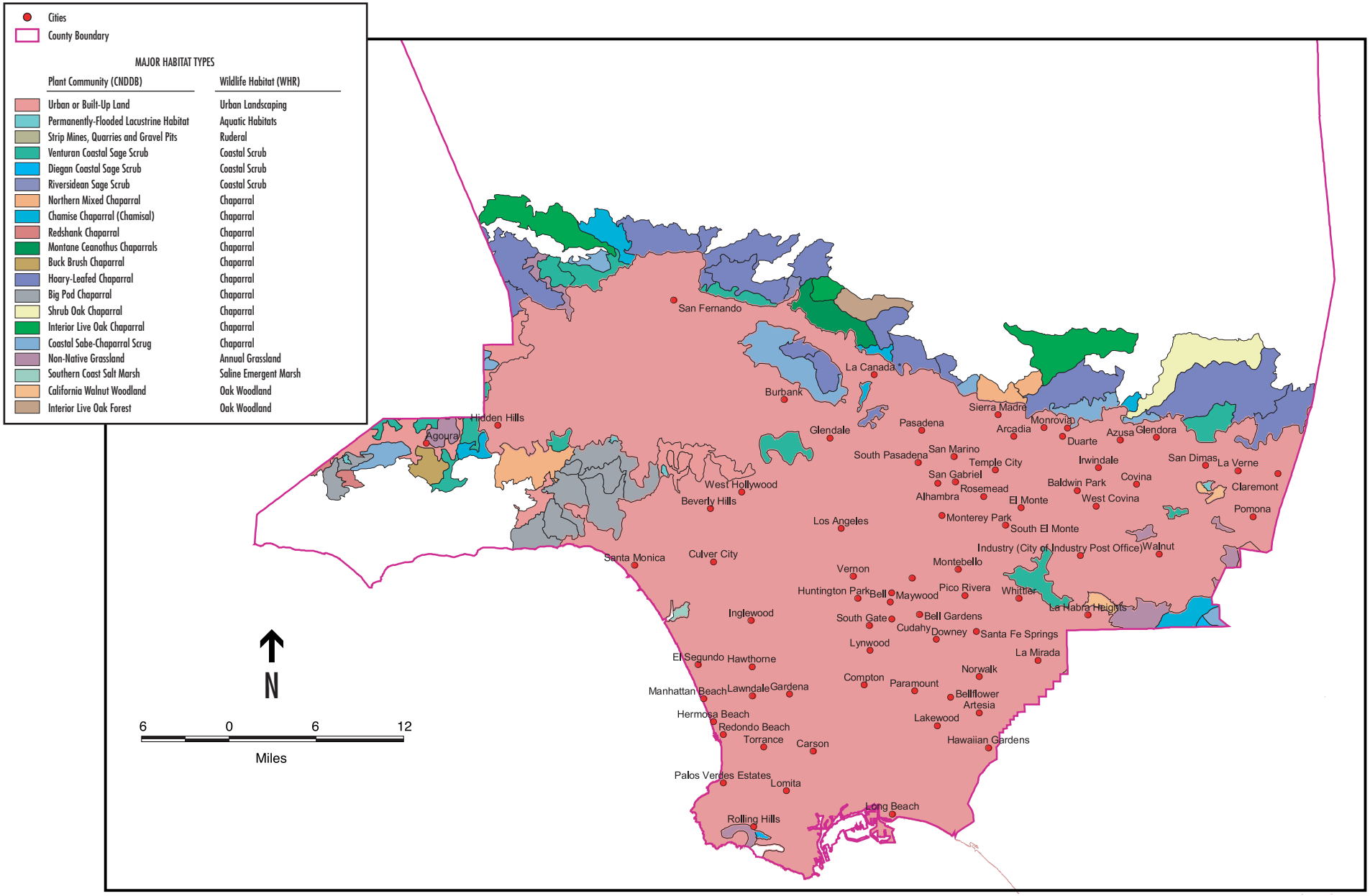
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-9
San Bernardino County
Project Vicinity Habitats



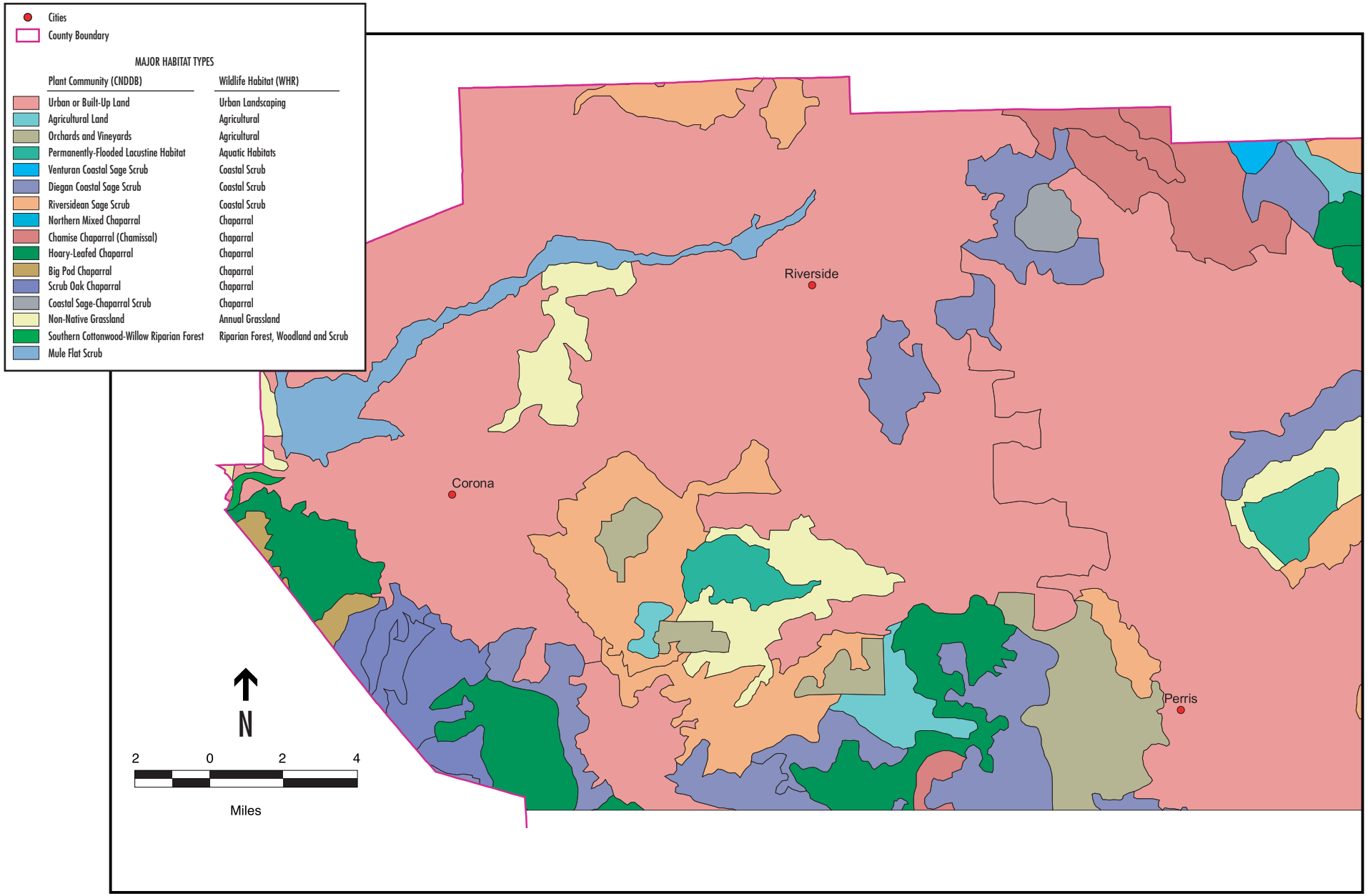
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-10
Fresno County
Project Vicinity Habitats



SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

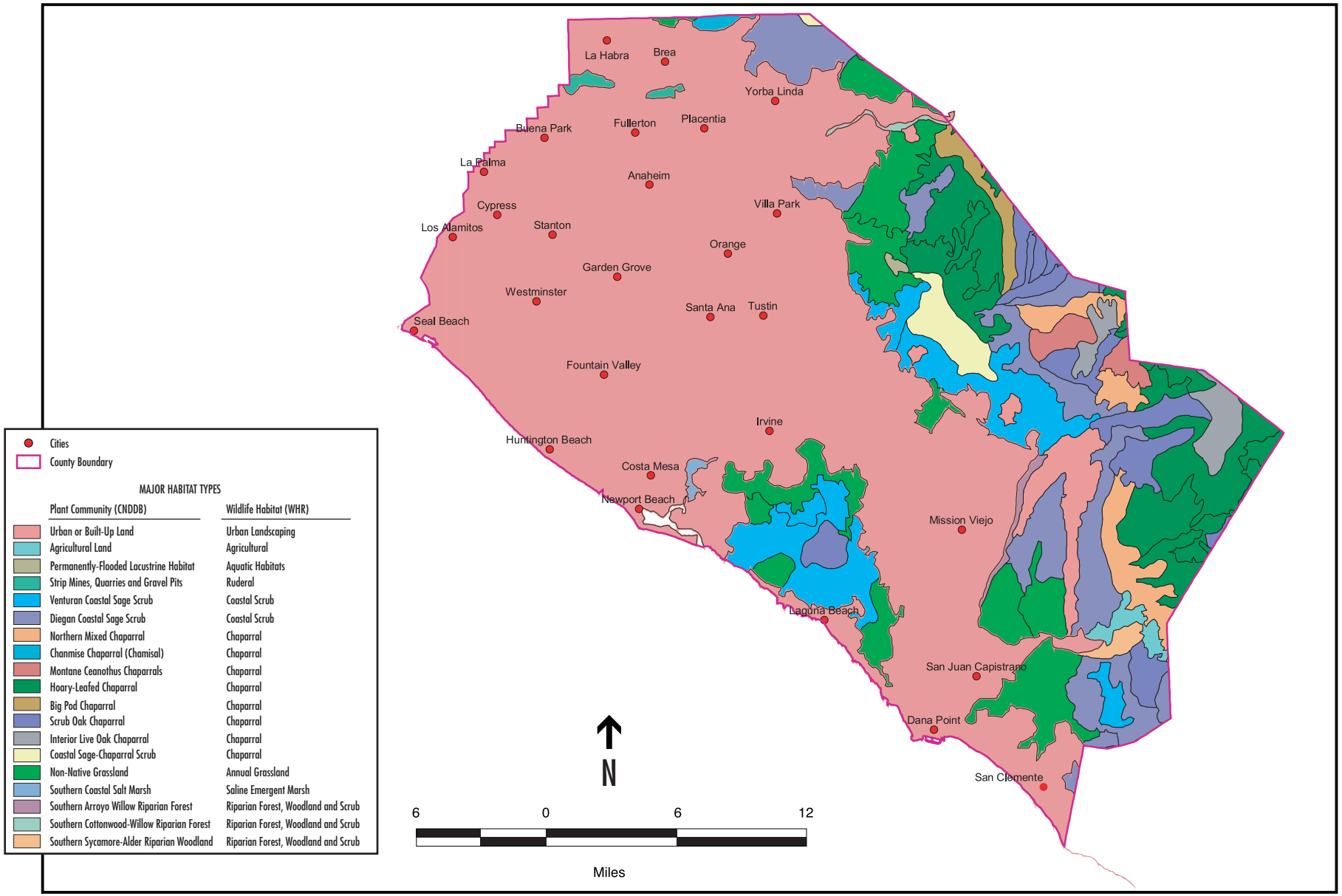
Figure 4.4-11
Los Angeles County
Project Vicinity Habitats



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

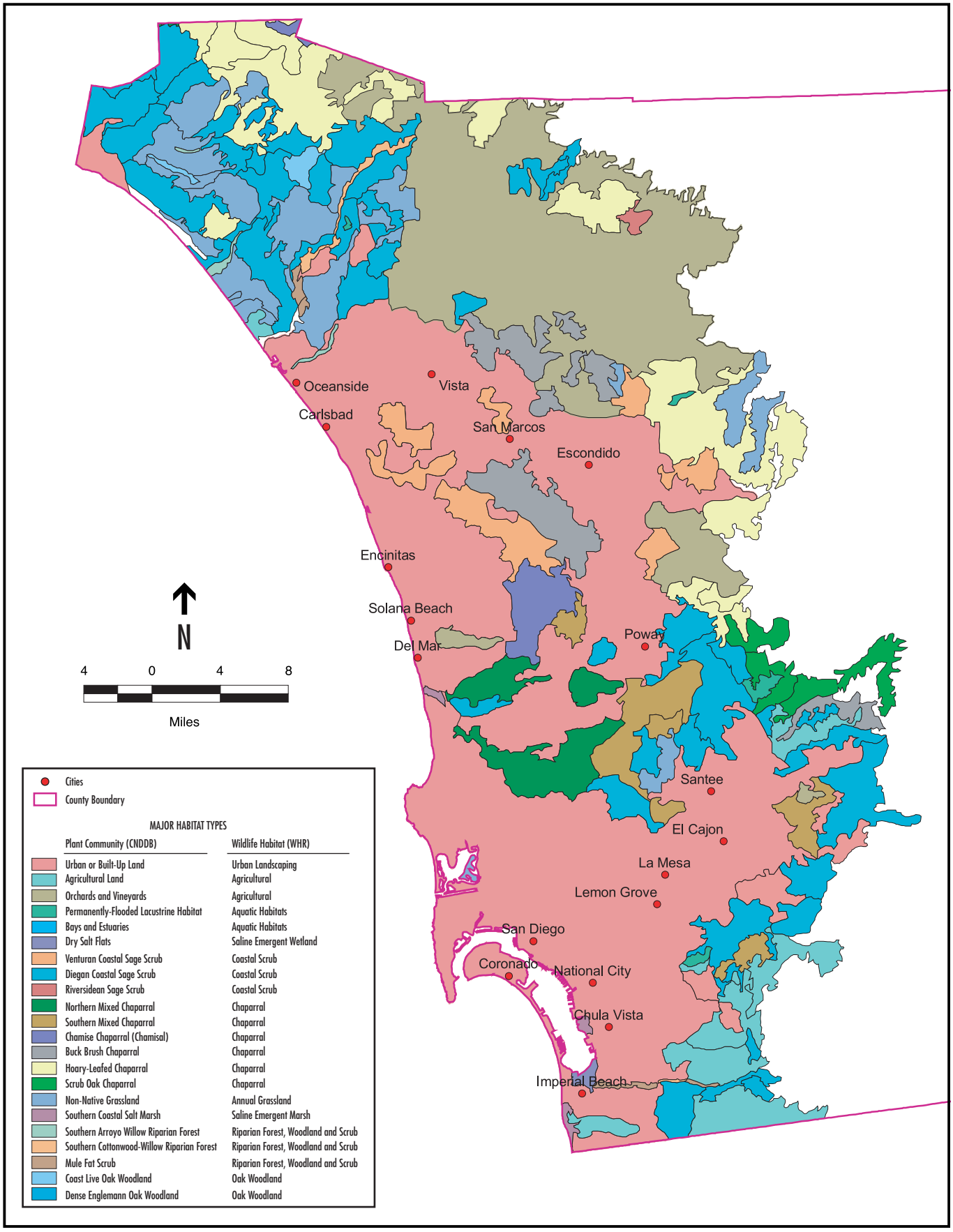
SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-12
Riverside County
Project Vicinity Habitats



SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

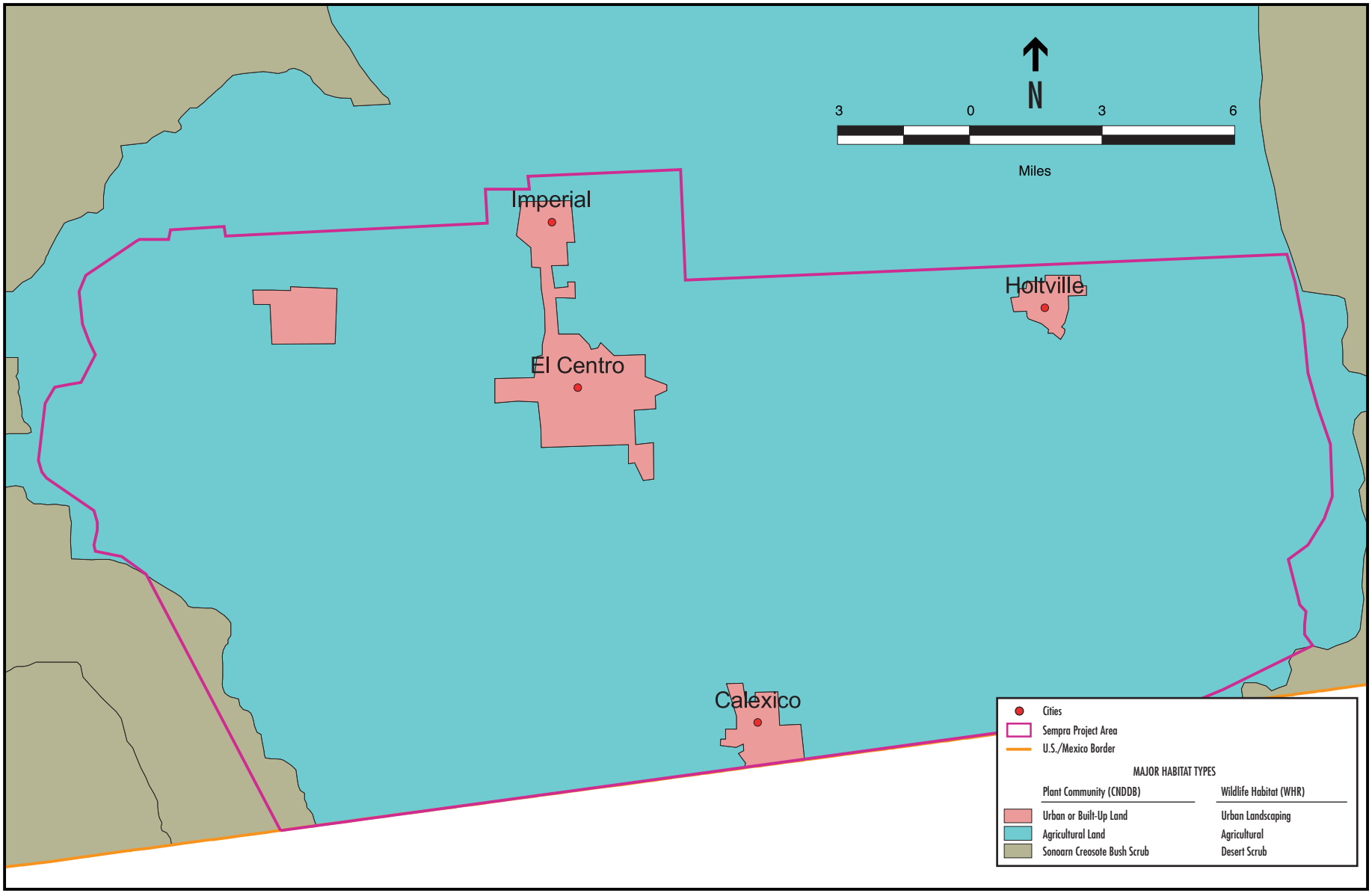
Figure 4.4-13
Orange County
Project Vicinity Habitats



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-14
San Diego County
Project Vicinity Habitats



SOURCE: Land-Cover for California, California Gap Analysis 1998; and Environmental Science Associates, 2002

Figure 4.4-15
Imperial County
Project Vicinity Habitats

4.5 CULTURAL RESOURCES

4.5.1 OVERVIEW

INTRODUCTION

The environmental diversity of California, with its ranges of climate, varied topography and geology, and wide array of biological communities, creates an equally diverse cultural landscape, prehistorically and historically. The level of archaeological and historical studies completed in the project area ranges from extensive studies to no formal investigations. Overall, the cultural resource setting includes prehistoric sites that may extend back for several thousand years with some sites showing evidence of contact with early European exploration of California . The historic sites in the project area can reflect the broad cultural panorama of these regions of California. Historic sites can include those associated with early exploration and colonization; the Spanish, Mexican, and American expansions; the Gold Rush; the boom of the 1880s–1890s; post-1900 industrialization; and growth during the World War I, World War II, and post-war eras.

Pre-dating, and in some cases contemporary with, human habitation of the project area, paleontological resources in the form of fossilized remains of organisms that lived in the region in the geologic past are also present in the soil and preserve an additional aspect of prehistory. These resources are also present in the project area.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES

The archaeological record for the project area extends back thousands of years. The overall prehistoric pattern is one of early game hunters followed by more sedentary hunters and gatherers, followed by groups who focused on collecting and lived in large permanent and semi-permanent villages. Historical resources are associated with activities that began with the arrival in California of the first Europeans in the 16th century and extend from that time through to the present day.

The location of known archaeological and historical sites is confidential to prevent scavenging of artifacts. Artifacts are considered non-renewable resources. Detailed information, especially their location, is considered proprietary by State law. Therefore, the following discussion only gives generalities of a topic that could span many volumes of information.

In contrast to prehistoric archaeological sites, the location of historic sites is open to the general public in such registers as the NRHP, the CHL, the California Points of Historic Interest (PHI), and the State Historic Resources Inventory (HRI). On a more local level the City of Los Angeles Historic-Cultural Monuments listing is available in print.

Properties are constantly added to each of these historic registers. The CHL is reprinted periodically, generally every ten years. The HRI is revised at least twice a year. The PHI and the NRHP are also updated constantly.

Table 4.5-1 lists the prehistoric and Native American sites present in the project area that are on the California State Historical Landmarks Register (CHL) and on the National Register of Historic Places (NRHP).

TABLE 4.5-1
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

California State Historical Landmarks Register		
CHL #	**Site Name**	**General Location**
Alameda County		
335	Site of Shell Mound	Emeryville
Orange County		
217	Black Star Canyon Indian Village Site	North of Silverado
Riverside County		
187	Carved Rock	South of Corona
101	Giant Desert Figures	North of Blythe
557	Hemet Maze Stone	Hemet
190	Painted Rock	South of Corona
1005	Santa Rosa Rancho	Murieta
104	Site of Indian Village of Pochea	Hemet
Sacramento County		
900	Nisipowinan Village Site	Sacramento
San Bernardino County		
620	Yucaipa Rancheria	Yucaipa
San Mateo County		
22	Portola Expedition Camp	South of Half Moon Bay
26	Portola Expedition Camp	South of Half Moon Bay
375	Tunitas Beach, Indian Village Site on Portola Route	South of Half Moon Bay

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

National Register of Historic Places		
NRHP #	**Site Name**	**General Location**
Alameda County		
71001109	Ohlone Indian Cemetery	Fremont
Contra Costa County		
78000658	Winehaven (Point Molate; Fuel Dept.; NSCO)	Richmond
Fresno County		
72001601	Winchell Creek Archaeological District	Friant
Imperial County		
84004083	Coyote Valley Site (Site P-15)	Palo Verde
73002252	Fages-De Anza Trail-Southern Emigrant Road	Anza-Borrego
84004063	Hillside Figure (Site G-2)	Palo Verde
84004114	Main Yuha Site	Palo Verde
84004071	North Cargo Muchacho (Site L-3)	Palo Verde
84004111	Ocotillo Wells (Site P-13;322B)	Palo Verde
84004074	Ogilby Site A (Site L-6)	Palo Verde
84004065	Palo Verde Circles and Arrow	Palo Verde
84004079	Pilot Knob 18	Palo Verde
84004075	Pilot Knob Anthropomorphic Figure (M-1)	Palo Verde
84004080	Pilot Knob Anthropomorphic Figure (M-8)	Palo Verde
84004078	Pilot Knob Horse (Site M-4)	Palo Verde
84004076	Pilot Knob Lizard (Site M-2)	Palo Verde
84004077	Pilot Knob Ring (Site M-3)	Palo Verde
84004113	Pinto Wash (Site P-17)	Palo Verde
84004073	Quail, The (Site L-5)	Palo Verde
84004069	Running Man (Site L-1)	Palo Verde
84004082	Singer Element 1-A (Site O-1)	Palo Verde
84004084	Singer Element 1-B (Site O-2)	Palo Verde
84004085	Singer Element 1-C (Site O-3)	Palo Verde
84004086	Singer Element 1-D (Site O-4)	Palo Verde
84004087	Singer Element 1-E (Site O-5)	Palo Verde

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
84004088	Singer Element 1-F (Site O-6)	Palo Verde
84004089	Singer Element 1-G (Site O-7)	Palo Verde
84004090	Singer Element 1-H (Site O-8)	Palo Verde
84004091	Singer Element 1-I (Site O-9)	Palo Verde
84004092	Singer Element 1-J (Site O-10)	Palo Verde
84004093	Singer Element 1-K (Site O-11)	Palo Verde
84004094	Singer Element 1-L (Site O-12)	Palo Verde
84004095	Singer Element 1-M (Site O-13)	Palo Verde
84004096	Singer Element 2-A (Site O-14)	Palo Verde
84004097	Singer Element 2-B (Site O-15)	Palo Verde
84004098	Singer Element 2-C (Site O-16)	Palo Verde
84004099	Singer Element R-1 (Site O-18)	Palo Verde
84004064	Site G-3	Palo Verde
84004070	Site L-2	Palo Verde
84004072	Site L-4	Palo Verde
84004081	Site M-11	Palo Verde
84004027	Site M-9 (AZ-050-0416)	Palo Verde
84004112	Site P-14	Palo Verde
84004106	Site P-8	Palo Verde
99001567	Southwest Lake Cahuilla Recessional Shoreline Archeological District	Salton City
87001026	Stonehead (L-7)	Yuma
84004028	Sweeney Pass Site (Site S-1)	Ocotillo Wells
84004068	Walter's Camp Linear Figure (Site I-1)	Palo Verde
87001025	Winterhaven Anthropomorph (L-8)	Yuma
85003429	Winterhaven Anthropomorph and Bowknot, L-9	Winterhaven
82002185	Yuha Basin Discontiguous District	Plaster City
84004107	Yuha Schneider Site (Site P-9)	Palo Verde
84004110	Yuha Shrine (Site P-12)	Palo Verde

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

84004100	Yuha Site A (Site P-1)	Palo Verde
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
84004101	Yuha Site B (Site P-2)	Palo Verde
84004102	Yuha Site C (Site P-3)	Palo Verde
84004103	Yuha Site E (Site P-4)	Palo Verde
84004104	Yuha Site F (Site P-5)	Palo Verde
84004105	Yuha Site G-1 (Site P-6)	Palo Verde
84004108	Yuha Site H (Site P-10;322E)	Palo Verde
84004109	Yuha Site I (Site P-11;322-G)	Palo Verde
Los Angeles County		
76000492	Humaliwo (Malibu Site LAN-264)	Malibu
74000517	Old Santa Susana Stage Road	Chatsworth
74000521	Puvunga Indian Village Sites	Long Beach
82000429	Puvunga Indian Village Sites (Boundary Increase)	Long Beach
81000153	Rancho Los Alamitos	Long Beach
82004617	Saddle Rock Ranch Pictograph Site	Malibu
90002218	Saddle Rock Ranch Pictograph Site	Malibu
72000228	Vasquez Rocks	Agua Dulce
Marin County		
79000493	China Camp	San Rafael
78000704	Green Brae Brick Yard	Larkspur
71000163	Miller Creek School Indian Mound	San Rafael
81000097	Muir Beach Archaeological Site	Marin City
73000409	Rancho Olompali	Novato
Orange County		
93000300	Christ College Site (CA-ORA-378)	Irvine
72000243	Fairview Indian Site	Costa Mesa
76000505	Jose Serrano Adobe	El Toro
Riverside County		
73000422	Andreas Canyon	Palm Springs

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

84004025	Archaeological Site 4RIV778 (Site E-6)	Blythe
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
72000247	Buttercup Farms Pictograph	Perris
72000247	Coachella Valley Fish Traps	Valerie
98001286	Corn Springs (CA-RIV-32)	Desert Center
84004038	Dancing Shaman Group (Site E-5)	Blythe*
84004054	Hook Figure (Site E-45)	Blythe*
84004037	Little Bird and 1,000 seats (E-4a;E-4b)	Blythe*
82002226	McCoy Spring Archaeological Site	Blythe
84004045	Military Site (Site E-16)	Blythe*
73000424	Murrieta Creek Archaeological Area	Temecula
81000165	North Chuckwalla Mountain Quarry District	Desert Center
81000166	North Chuckwalla Mountains Petroglyph District	Desert Center
84004042	Quien Sabe 111 (Site E-12)	Blythe*
84004039	Quien Sabe Bird—Slaughter Tree Wash Dance Pattern (E-9)	Blythe*
84004035	Site E-1	Blythe*
84004041	Site E-11	Blythe*
84004046	Site E-19	Blythe*
84004047	Site E-20	Blythe*
84004048	Site E-22	Blythe*
84004049	Site E-24	Blythe*
84004036	Site E-3	Blythe*
72000246	Tahquitz Canyon	Palm Springs
Sacramento County		
71001077	Bennet Mound (4-Sac-16)	Sacramento
71000175	Delta Meadows Site (4-Sac-76)	Locke
75000456	Indian Stone Corral	Orangevale
71000177	Joe Mound (4-Sac-31)	Sacramento
78000739	Nisenan Village Site (CA-SAC-99 lower)	Carmichael
71000179	Woodlake Site (4-Sac-39)	Sacramento

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

San Bernardino County		
82002239	Aiken's Wash National Register District	Baker
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
81000170	Archeological Site CA SBR 3186	Silver Lake
85003435	Archeological Site No. D-4	Needles
85003578	Archeological Site No. D-6	Needles
85003430	Archeological Site No. E-21	Parker
84004030	Beale Slough Figures (Site D-9)	Needles
82000981	Bitter Spring Archaeological Site (4-SBr-2659)	Barstow
00001046	Black Canyon--Inscription Canyon--Black Mountain Rock Art District	Hinkley
00001326	Blackwater Well Archeological District	Red Mountains
82002241	CA SBr 1008A, CA SBr 1008B, CA SBr 1008C	Johannesburg
76002306	Cajon Pass Camp Site	San Bernardino
73000430	Calico Mountains Archeological District	Yermo
76000514	Crowder Canyon Archeological District	San Bernardino
80000838	Fontana Pit and Groove Petroglyph Site	Fontana
95000044	Foxtrot Petroglyph Site	Twentynine Palms
78003511	Indian Rock Art Site	Twentynine Palms
84004034	Lake Havasu Site (Site D-10)	Needles
83004699	Newberry Cave Archeological Site (4SBR199)	Barstow
00001325	Newberry Cave Site CA-199	Newberry Springs
84004032	Park Moabi Site (Site D-11)	Needles
73000429	Piute Pass Archeological District	Needles
82002240	Rodman Mountains Petroglyphs Archeological District	Barstow
84004033	Site D-12	Needles

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

84004029	Site D-7	Needles
81000169	Squaw Spring Archeological District	Red Mountain
78000745	Topock Maze Archeological Site	Needles
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
San Diego County		
85003431	Anza Borrego – Palo Verde Site, S-2	Borrego Springs
85003432	Anza Borrego – Sin Nombre, S-4	Borrego Springs
85003433	Anza Borrego – Split Mountain Site, S-3	Borrego Springs
74000547	Bear Valley Archaeological Site	Pine Valley
73002252	Fages-De Anza Trail – Southern Emigrant Road	Borrego Springs
93001520	Harris, C. W., Site Archaeological District	Rancho Santa Fe
92001268	Kuchamaa (Tecate Peak) District	Tecate
93000391	Las Flores Estancia (CA-SDI-812)	Camp Pendleton
76002308	Lower Borrego Valley Archaeological District	Borrego Springs
75000466	Sorrento Valley Site (Rimbach Ranch)	San Diego
83003593	Table Mountain District	Jacumba
San Francisco County		
76000176	Point Lobos Archaeological Sites District	San Francisco
San Mateo County		
78000771	Archaeological Site SMA-151	Princeton
75000479	Bourn-Roth Estate (Filoli)	Woodside
Santa Clara County		
82004985	Circles of Circles Archaeological District	Morgan Hill
71000192	Coyote Creek Archaeological District	Gilroy Hot Springs
72000254	Poverty Flat Site (4SCL-sl)	Morgan Hill

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

Santa Cruz County		
79000552	Branciforte Adobe	Santa Cruz
81000178	Allan Brown Site (CA-SCR-20)	Santa Cruz
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
76000532	Watsonville-Lee Road Site (CA-SCR-107)	Watsonville

* - Listing with restricted information regarding location, cultural affiliation, period, or function.

The project area was occupied during both the prehistoric and protohistoric periods; therefore archaeological sites are widespread and numerous. Rock outcrops, river and stream drainages, and coastal strips were often prime locations for Native American village sites or processing camps. These locations now range from highly urbanized locations such as cities to undeveloped areas of the high desert. Often archaeological sites are covered by three feet or more of topsoil, thereby protecting the remains even after an area has been fully urbanized.

Prehistoric Period (Prior to 1542)

The Prehistoric cultural history of California throughout the project area can be described in terms developed by archaeologist and culture historian William Wallace (1978). He has characterized the early “Post-Pleistocene” prehistory of California, from approximately 11,000 years ago to 4,000 years ago, in terms of the “food-getting” habits as demonstrated in the artifactual evidence left behind in the archaeological record. On this basis, he defined three periods of distinctive subsistence practices for this approximately 7,000-year span. He termed the periods as: Period I: Hunting (11,000 to 8,000 B.P.), Period II: Food Collecting (8,000 to 5,000 years ago), and Period III: Diversified Subsistence (5,000 to 4,000 years ago). Elsasser (1978) described the time period beginning around 4,000 years ago up to 1,000 years ago as an era in California’s prehistory when distinctive regional cultures developed. These regional cultures were an outgrowth of the period of subsistence diversification described by Wallace. Elsasser defined five regions during this period: Central California, the North Coast Ranges, the Sierra Nevada, Northwestern California, and the Southern California Coast, as being distinctive from one another in identifiable cultural traits. From circa 1,500 years ago to circa 300 years ago (the approximate time of European contact and subsequent cultural disruption), is a period characterized as Protohistoric (King 1978), signifying the last period of undisrupted prehistoric cultures in the state. In some areas this period is distinguished by new subsistence technologies such as the bow and arrow as well as by other distinctive traits such as burial by cremation and the introduction of ceramics. The abundance of resources available in California created a great deal of potential for hunter-gatherers, which resulted in population growth and cultural

elaboration. Indeed, Native Californians achieved the highest level of complexity and sociocultural integration without the adoption of agriculture. The material culture that represents this lengthy period of cultural change is of prime interest to archaeologists.

ETHNOGRAPHIC BACKGROUND

The project area as a whole represents a vast area that once was the home to at least 20 distinct Native American groups. As with all California Indians, these groups exhibited a wide variety of economic and political strategies; however, most of the earliest California inhabitants subsisted by hunting and gathering, with coastal groups relying to a significant degree on marine food resources such as fish, shellfish and marine mammals as well as terrestrial resources for shelter and sustenance, while interior groups relied primarily on terrestrial resources for subsistence. These ethnographically defined groups were still occupying the project area during the 18th and 19th centuries when European explorers and early ethnographers took notes.

The territorial boundaries defined by the early ethnographers for Native American groups have fluctuated through time and are often ill defined. Moreover, many tribal boundaries overlapped. The boundaries reflect general areas in which Native American groups resided and should not be considered fixed. Most groups migrated within these general boundaries over time. The following is a discussion of Native American groups that appear to represent the principal groups that have inhabited locations throughout the project area.

Two Penutian derived groups, the Coastanoan (Ohlone) and the Coast Miwok (*Mewuk*) inhabited the San Francisco Bay area at the time of first European contact (circa 1579). The linguistically distinct Coast Miwok inhabited only the peninsula area north of San Francisco at the time of contact. In Contra Costa County, in addition to the Ohlone, the Northern Valley Yokuts and Eastern Miwok inhabited portions of the county. Two other Penutian derived groups the Nisinan (Southern Maidu) and the Eastern Miwok to the south, inhabited most of the Sacramento area prior to, and at the time of first European contact. The Nisenan, together with other adjacent Maidu groups, and the Eastern Miwok form subgroups of the California Penutian linguistic family (Wilson and Towne 1978; Levy 1978:398-413; Kroeber 1925:393). In Fresno County, three other Penutian groups, the Northern Valley Yokuts, Southern Valley Yokuts, and Foothill Yokuts inhabited the northern Central Valley and the eastern Sierra Nevada foothill area of the county (Kroeber 1925; Wallace 1978: 448-470; Spier 1978:471-484).

The six contiguous southern counties within the project area were inhabited ethnographically, principally, by five Native American groups. One group inhabited the Los Angeles Basin, the Shoshonean derived Gabrielino. Orange and western Riverside Counties were also inhabited by Shoshonean derived groups, the JuaneZo and LuiseZo, but a Hokan derived group, the Kumeyaay or DiegueZo inhabited southern San Diego County. Riverside County was inhabited by two other Shoshonean groups, the Cahuilla, and the Chemehueve, and one Hokan group, the Halchidhoma. San Bernardino County was inhabited by the Gabrielino and four other Shoshonean groups, the Serrano, the Kawaiisu, the Southern Paiute, and the Chemehueve; and two Yuman groups, the Halchidhoma and the Mojave. The western portion of Imperial County was inhabited by the

Kumeyaay, while the eastern portion along the Colorado River was inhabited by another Yuman group the Quechan. The Gabrielino, JuaneZo, and LuiseZo also did not have a single term or word in their language by which they referred to themselves. Thus, they came to be known by terms for the Spanish mission with which they eventually became associated; the Gabrielino from the Mission San Gabriel, the JuaneZo from the Mission San Juan Capistrano, and the LuiseZo from the Mission San Luis Rey. The Kumeyaay were also originally known historically by a mission associated term, the DiegueZo for the Mission San Diego, but have more recently been more commonly called by a Native American term "Kumeyaay" (Kroeber, 1925; Bean and Smith, 1978:538-549; Johnson, 1962; Luomala 1978).

During the historic period beginning in the mid-1700s, the natives of the project area suffered at the hands of the Spanish missionaries and settlers. While no missions were established in the immediate Sacramento and Fresno areas, the local people were affected by missions built in San Francisco de Solano (present-day Sonoma), San Rafael, and, San Jose. As the populations of coastal Indians were depleted, the Spaniards turned inland for new sources of converts and labor. The introduction of diseases for which the natives did not have immunity coupled with the rapid changes in cultural patterns forced upon them by the Spaniards led to the death and displacement of thousands of native people. This situation was true for the natives in all of the project areas of California, both north and south, during the Spanish period. Likewise, during the Mexican period (circa 1821), following the Mexican Revolution, land use by Europeans intensified and the natives continued to lose land and power as the Hispanics spread across each of the areas. This was the era of large cattle ranches and the consolidation of power by a relatively small number of Mexican families.

Following the Mexican American War in 1848, California became first a territory of the United States and then a state. The discovery of gold in the Sierra foothills in 1848 led to an immense influx of Americans and other gold seekers. With as many as 10,000 men a month pouring into the territory, northern and central California grew virtually overnight and became a major supply center for the nearby goldfields. The native people, already weakened by seven decades of Hispanic rule, were pushed into the foothills, forced into involuntary labor, and denied any land rights. While the immediate effects of the gold rush were less pronounced in the southern California area, eventually with California statehood and conflicts between state and federal control, the native people were further marginalized in all areas of the state.

4.5.2 HISTORIC RESOURCES

After sporadic exploratory expeditions by the Spanish beginning in the early 1500s, the more permanent settlements initiated by Europeans in 1769 is considered to be the inception of the Historic Period in California's history. With the advent of permanent settlements came a number of major changes in the cultural evolution of California. First, the settlements led to the breakdown of indigenous cultures and their eventual missionization, which was also exacerbated by the increasing geographic scale that the European settlers began to use and change. This, in turn, led to the rise in urbanization and increasing agricultural focus of the state up to the present day. Multiple phases of political control shaped California's history during this period. These

phases (the Spanish, Mexican, and American) provide a record of occupation and land use. Each of these occupational periods represents a presence, chronological significance, and historical relationship of cultural resources within the project area. Acquiring new information on these phases with respect to the methods used in archaeology is a new field. A more detailed characterization of the phase and potential resources related to that phase is an important aspect of reducing impacts to cultural resources and allows for a more rigorous study of these phases of California history.

4.5.3 PALEONTOLOGICAL RESOURCES

Paleontology is a branch of geology that studies prehistoric life forms other than humans, through the study of plant and animal fossils. Paleontological resources are fossilized remains of organisms that lived in the region in the geologic past and therefore preserve an aspect of Southern California prehistory which is important in understanding the development of the region as a whole, as many of these species are now extinct. Like archaeological sites and objects (which pertain to human occupation), paleontological sites and fossils are non-renewable resources. They predominantly are found in sedimentary rock deposits, and are most easily found in regions which may have been uplifted and eroded, but, they may also be found anywhere that subsurface excavation is being carried out. For example, ancient marine fossils have been found in the Santa Monica Mountains, particularly in exposed canyon areas, streambeds, and along roadcuts. They have also been found under the streets of Los Angeles during storm drain and subway construction. Most of the Los Angeles Basin is composed of sedimentary deposits.

The following types of paleontological resources are known to exist in the project area:

- True Fossils: Lithified or replaced remains of plants and animals preserved in a rock matrix (e.g., microfossils, shells, animal bones and skeletons, and whole tree trunks);
- Trace Fossils: Molds, casts, tracks, trails and burrow impressions made in soft clays and muds which subsequently were turned to stone, preserving the images of past life (e.g., shells, footprints, leaf prints, and worm tubes);
- Breas: Seeps of natural petroleum that trapped extinct animals and preserved and fossilized their remains.

Both marine and land vertebrate and invertebrate fossils are found in the project area. In California, vertebrate fossils (fossils from animals that have skeletons) are found in rocks that date from 300 million years old to 13,500 years old, yet they are still considered rare if found. This is because they are found less frequently and in a less complete condition than invertebrate and plant fossils (Bedrossian 1975).

FOSSILS AND THEIR ASSOCIATED FORMATIONS

Geologic formations are the matrix in which most fossils are found, occasionally in buried paleosols (ancient soils). These formations are totally different from modern soils and cannot be correlated with soil maps that depict modern surface soils representing only a thin veneer on the surface of the earth. Geologic formations may range in thickness from a few feet to hundreds of thousands of feet, and form complex relationships below the surface. Geologic maps (available through the U.S. Geological Survey [USGS] or California Division of Mines and Geology [CDMG]) show the surface expression (in two dimensions) of geologic formations along with other geologic features such as faults, folds, and landslides. Although sedimentary formations were initially deposited one atop the other, much like a layer cake, over time the layers have been squeezed, tilted, folded, cut by faults and vertically and horizontally displaced, so that today, any one rock unit does not usually extend in a simple horizontal layer. If a sensitive formation bearing fossils can be found at the surface in an outcrop, chances are that same formation may extend not only many feet into the ground straight down, it may well extend for miles just below the surface. This makes the task of predicting which areas are paleontologically sensitive difficult.

A majority of the project area are rich with fossil bearing sedimentary formations. All regions have crystalline basement rocks (metamorphic & plutonic) overlain by sedimentary and volcanic rocks. There are at least 23 different formations in Orange County alone, most of which are sedimentary and fossiliferous.

4.5.4 RESEARCH METHODS AND GENERAL RESULTS

DETERMINING ARCHAEOLOGICAL AND HISTORICAL POTENTIAL

Depending on the locational circumstances of subsequent activities, various types of prehistoric archaeological or historical resources could be affected. For example, the potential for the presence of prehistoric subsurface (archaeological) resources increases with proximity to ancient stream courses, springs, or coastal or lacustrine shorelines. Prehistoric Californians frequently established their principal settlements in such circumstances to insure adequate sources of food and water. Through time, their extended and recurrent stays in these locations resulted in the accumulation of living debris and the creation of subsurface deposits or middens. These deposits could be encountered if excavation is required to install, construct or maintain the proposed telecommunications infrastructure and appurtenant facilities. For historical resources, within already urbanized areas, and depending on the age of the historic settlement in the area, subsurface historical features may be present beneath city streets or buildings. These features could be encountered if excavation is required to install, construct, or maintain the proposed cable lines and appurtenant facilities. In older cities such as San Diego, Los Angeles, or San Francisco, where settlement extends from Spanish times through the Mexican period and into the present, the potential for such subsurface historical features increases. These subsurface historical features could include remnant houses, buildings, or other structural foundations; abandoned infrastructure elements such as roadways, rail lines, or culverts, or deposits consisting of trash. As with the prehistoric subsurface sites, these features could be encountered if excavation is required to install

or construct the proposed facilities. Historical resources can also consist of standing buildings or structures. These buildings or structures can be present either in existing urban or in rural settings. Alteration of such buildings or structures, if required, could be impactive to these resources.

With the various fiber optic cable facility installation methods proposed (i.e., on existing transmission towers or within existing gas lines underground) for placement of the fiber optic cable facilities, the potential for impacts to archaeological and historical resources, while diminished, could still occur if earth moving activities or existing building alterations are required. Consequently, record searches at regional information centers and in some cases, field surveys would be necessary to determine if archaeological and/or historical resources may be present in areas where project activities are to occur.

DETERMINING PALEONTOLOGICAL POTENTIAL

The most general paleontological information can be obtained from geologic maps, but geologic cross sections (slices of the layer cake to view the third dimension) must be reviewed for each area in question. These usually accompany geologic maps or technical reports. Once it can be determined which formations may be present in the subsurface, the question of paleontological resources must be addressed. Even though a formation is known to contain fossils, they are not usually distributed uniformly throughout the many square miles the formation may cover. If the fossils were part of a bay environment when they died, perhaps a scattered layer of shells will be preserved over large areas. If on the other hand, a whale died in this bay, you might expect to find fossil whale bone only in one small area of less than a few hundred square feet. Other resources to be considered in the determination of paleontologic potential are regional geologic reports, site records on file with paleontological repositories and site specific field surveys.

Location and Significance of Major Finds in the Project Area

There are many fossil localities recorded in the project area. Paleontologists consider all vertebrate fossils to be of significance. Fossils of other types are considered significant as well if they represent a new record, new species, an oldest occurring species, the most complete specimen of its kind, a rare species worldwide, or a species helpful in the dating of formations. However, even a previously designated low potential site may yield significant fossils.

4.5.5 REGULATORY SETTING

Cultural resources in the project area include archaeological sites of prehistoric or historic origin, fossil deposits of paleontological importance, and standing structures with national, state, or local significance. These resources are regulated at the federal, state and local levels as discussed below.

FEDERAL

Federal regulations and policies pertain to those actions that involve federal funding, federal licensing, federal permitting, or that may be constructed on federal land. Examples may include federal grants or licensing (Federal Energy Regulatory Commission [FERC] and the Interstate Commerce Commission [ICC]) and federal permits associated with vegetation and wetlands (US Army Corps of Engineers [Corps] Section 404 permits), or construction within a military base.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1970 mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. Subsequent activities are to be evaluated according to their significance in affecting the quality of the environment. NEPA addresses a wide range of environmental issues including the documentation of, and potential impacts to, cultural and historic properties. Compliance includes an on-site survey by a qualified archaeologist prior to construction. A report of findings may be submitted to the State Historic Preservation Office (SHPO) for further consultation.

National Historic Preservation Act

Most regulations at the federal level stem from NEPA and historic preservation legislation such as the National Historic Preservation Act (NHPA) of 1966. NHPA established laws for historic resources to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." Historic preservation legislation was initiated by the Antiquities Act of 1966, which aimed to protect important historic and archaeological sites. It established a system of permits for conducting archaeological studies on federal land, as well as setting penalties for noncompliance. This permit process controls the disturbance which may be caused to archaeological sites. New permits are currently issued under the Archeological Resources Protection Act (ARPA) of 1979. The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands. The Historic Sites Act of 1935 declared that it is national policy to "Preserve for public use historic sites, buildings, and objects of national significance." The NHPA expanded the scope to include important state and local resources. Provisions of NHPA establish the NRHP maintained by the National Park Service, advisory councils on historic preservation, state historic preservation offices, and grants-in-aid programs. Section 106 of the NHPA requires all federal agencies to consult the Advisory Council before continuing any activity affecting a property listed on or eligible for listing on the National Register. The Advisory Council has developed regulations for Section 106, to encourage coordination of agency cultural resource compliance requirements under Executive Order 11593 and NEPA with those of Section 106.

Section 106 Review

Section 106 of the NHPA requires a federal agency with jurisdiction over a federally funded, federally assisted, or federally licensed undertaking to take into account the effects of the agency's undertaking on properties listed or eligible for listing in the NRHP (16 USC 470 et seq.). For example. if subsequent activities require a permit from the Corps, it would be necessary for the activity to comply with Section 106 of the NHPA.

For compliance with Section 106 of the NHPA, the lead federal agency is required to consult with the SHPO before granting permits, funding, or other authorization of the undertaking. The Section 106 review process is implemented using a 5-step procedure:

- identification and evaluation of historic properties,
- assessment of the effects of the undertaking on properties that are eligible for listing in the NRHP,
- consultation with the SHPO and other agencies for the development of an agreement that addresses the treatment of historic properties,
- receipt of Advisory Council on Historic Preservation comments on the agreement or results of consultation, and
- implementation of subsequent activities according to the conditions of the agreement.

To determine whether the subsequent activities could affect NRHP-eligible properties, cultural sites (including archaeological, historical, and architectural properties) must be inventoried and evaluated for eligibility for listing in the NRHP. Although compliance with Section 106 is the responsibility of the federal lead agency, the work necessary to fulfill compliance can be delegated to others. If no properties determined to be eligible for listing in the NRHP would be affected by the these actions , the federal lead need not consult with the SHPO. However, if the activities have the potential to result in an effect, the SHPO review will likely be completed within 30 days from receipt of the inventory documentation.

For subsequent activities, the Section 106 process may apply if there is a later requirement resulting in a federal action. In this event, the Area of Potential Effect designated for subsequent activities that would likely include cultural resources, such as features in the built environment, that could be indirectly or directly affected by elements related to telecommunications infrastructure development—such as above and below ground conduit installation, OP-AMP / regenerator stations, access roads, and the use of staging areas.

The National Register Section 36 CFR 800.5(a)(1) criteria for adverse affect is as follows:

- An undertaking has an adverse affect when it may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National

Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

- Examples of adverse affects, as listed in Section 36 CFR 800.5(a)(2), are as follows: physical destruction of or damage to all or part of the property;
- alteration, isolation, removal of the property, or change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- introduction of visual, audible, or atmospheric elements that diminish the integrity of the property's significant historic properties;
- neglect of a property which causes its deterioration, unless such deterioration is consistent with cultural values;
- transfer, lease, or sale of property out of Federal ownership.

STATE

With the CPUC as the lead agency, California policies and regulations are the primary source of regulations and guidelines.

California Environmental Quality Act

Certain portions of the California legal code are specifically concerned with the protection of cultural resources and archaeological human remains located on public or private land. The basic policy statements at the State level on which cultural resource protective regulations are based are contained in CEQA (adopted in 1970, revised in 1998), the California Coastal Act of 1976, the Coastal Commission Archaeological Guidelines, State Office of Historic Preservation Guidelines for cultural resource surveys and data recovery programs, and Native American Heritage Commission guidelines for cultural resources identification and protection. CEQA Appendix K formerly addressed significance and mitigation of archaeological sites, but was inadequate and outdated. Appendix K was eliminated in 1998 and the significant guidance it contained was placed into new sections 15064.5 and 15126.4 in the main body of CEQA. The new Appendix G has been enhanced and revised to help determine significance with an easy to use checklist. Most importantly, human remains of an archaeological nature are protected under Section 15064.5-e of CEQA and State Health and Safety Code Section 7050.5.

Cultural resources are defined within the context of CEQA to be buildings, sites, structures, or objects that are historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California. A substantial adverse change to the significance of a historical resource constitutes a significant effect on the environment. A "substantial adverse change" means "demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired" (Section 15064.5). All properties on the California Register, or that meet the standards

of the Register, that may be affected by development or zoning actions must be considered under CEQA. The fact that a resource or property is not listed on the California Register does not preclude it from being significant and does not make it exempt from CEQA evaluation. Examples may include locally designated properties and properties evaluated as significant in cultural resource surveys that meet CRHR criteria and State Office of Historic Preservation (SOHP) standards (the current surveys meet such criteria). Native American sites and areas of cultural sensitivity or sacred value may also be found to be significant in spite of not being formally listed. This may include resources or places where the cultural value is unique to the Native American community and to the non-Indian community as a whole. The discovery of human remains comes under state regulation and county jurisdiction through the oversight of the California Native American Heritage Commission.

In order to adequately address the level of potential impacts, and thereby design appropriate mitigation measures, the significance and nature of the cultural resources must be determined. The following are steps typically taken to assess and mitigate potential impacts to cultural resources for the purposes of CEQA:

- Identify both previously recorded cultural resources and those not previously recorded.
- Evaluate the significance of cultural resources using CEQA guidelines.
- Identify the significance of impacts under CEQA of the proposed project within the APE.
- Develop and implement mitigation measures designed to avoid, minimize, rectify, or reduce or eliminate the effects of the project on significant cultural resources.

Other Provisions of Public Resources Code

The State's cultural resources are regulated by the Public Resources Code (PRC). The PRC defines cultural preserves as "distinct areas of outstanding cultural interest" located in the State Park System for the protection of sites, buildings, or zones, which represent significant places or events in the flow of human experience in California. An historic resource includes, but is not limited to, "any object, building or structure, site, area, or place which is historically or archaeologically significant," or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Section 5097.5 of the PRC specifically defines "unauthorized excavation, removal, destruction, etc., of archaeological, paleontological or historical feature, on "Public Lands," as a misdemeanor. The California Administrative Code includes the following laws, Title 14, State Division of Beaches and Parks, Section 4307: Archaeological Features: No person shall remove, injure, disfigure, deface, or destroy any object of paleontological, archaeological or historical interest or value. The California Penal Code, Title 14, part 1, Section 622 1/2 provides that injury, etc. to an object of archaeological or historical interest is punishable as a misdemeanor.

State Office of Historic Preservation

SOHP implements preservation laws regarding historic resources, and is responsible for the Historic Resources Inventory (HRI), which uses the NRHP criteria for listing resources significant at the national, state, and local level.

Native American Heritage Commission

Section 50907.9 of the PRC and Section 7050 of the Health and Safety Code empower the Native American Heritage Commission to regulate Native American concerns toward the excavation and disposition of Native American cultural resources. Among its duties, the Commission is authorized to resolve disputes relating to the treatment and disposition of Native American human remains and items associated with burials. Upon notification of the discovery of human remains by a county coroner, the Commission notifies the Native American group or individual most likely descended from the deceased.

State Historical Building Code

In California, the State Historical Building Code (SHBC) provides some degree of flexibility to owners of historic structures towards meeting building code requirements. The SHBC standards and regulations are performance-oriented rather than prescriptive unlike most housing codes which are more prescriptive. Jurisdictions must use the SHBC when dealing with qualified historical buildings, structures, sites, or resources in permitting repairs, alterations and additions necessary for the preservation, rehabilitation, relocation, related reconstruction, change of use, or continued use of a historic property. The State Historical Building Safety Board has adopted the following definition for a qualified historical house or resource:

> A qualified historical building or structure is any structure, collection of structures, and their associates sites, deemed of importance to the history, architecture or culture of an area by an appropriate local, state, or Federal governmental jurisdiction. This should include designated structures declared eligible or listed on official national, state, or local historic registers or official inventories such as the National Register of Historic Places, State Historic Landmarks, State Points of Historical Interest, and officially adopted city or county registers or inventories of historical or architecturally significant sites, places, or landmarks.

Under the provisions of the SHBC, new construction or modifications, such as placing a generating station or other fiber optic facility in a historic building must conform to prevailing codes, although the elements of the existing structure are given the flexibility of reasonable and sensitive alternatives. The alternative building standards and regulations encompassed by the SHBC are intended to facilitate the renovation in a manner that assists in the preservation of original or restored architectural elements and features, encourages energy conservation, provides a cost-effective approach to preservation, and ensures the safety of occupants.

LOCAL REGULATORY FRAMEWORK

In addition to federal and state regulations, cities and counties may also provide regulatory protection and advisement regarding cultural resources. For instance, many cities and counties fund agencies designated to identify and protect resources. Some afford local ordinances that identify goals and standards for maintenance and protection of such resources. An example is the City of Los Angles, which established a Cultural Heritage Commission that maintains an ongoing listing of historic-cultural monuments within the city. In 1987, the Orange County Board of Supervisors established policy and procedures for cultural resource management in unincorporated portions of the county. Some local general plans provide conservation elements or other elements directly related to cultural resources located within their jurisdiction. In addition, many cities have locally designated historic districts and structures that may not be necessarily registered in the California Register of Historic Resources. Further, local definitions of historic significance or assessment rules may differ from that of CEQA or within the NHPA; therefore, local regulations need to be addressed on a specific project-level basis.

4.5.6 IMPACTS AND MITIGATION MEASURES

APPROACH TO ANALYSIS

The following analysis identifies potential impacts on cultural resources that could occur as a result of subsequent activities and describes mitigation measures that would reduce or eliminate potential impacts. The cultural resources inventory for the project area has not been completed; therefore, mitigation for cultural resources includes completion of the cultural resources inventory for proposed activities and the selection of methods to avoid impacts on potentially significant cultural resources in compliance with the CEQA Guidelines.

CRITERIA FOR DETERMINING SIGNIFICANCE

The primary criteria for determining the significance of impacts to cultural resources are related to the significance of the resources themselves, as provided in PRC 5024.1, Title 14 CCR, Section 4850 et seq., referenced in CEQA Guidelines (Sec. 15064.5), and the severity of the impact in diminishing or destroying the given resource. While the General Plans for the various counties and cities and California Coastal Act also address criteria for impact significance, these plans and guidelines necessarily reflect CEQA and efforts to preserve and protect California Historic Landmarks and those properties listed or deemed eligible for inclusion on the CRHR, established under PRC 5024.1.

Pursuant to Section 15064.5 of the CEQA Guidelines, significant impacts could occur to cultural resources identified as an historical resource. Identification of historical resources is a prerequisite to determining impacts resulting from subsequent activities. The CRHR is to be used to identify the State's historical resources and to indicate what properties are to be protected from adverse impacts. A site is eligible for the CRHR if it meets one of several criteria patterned after the NRHP (36 CFR 60.4) and CEQA. Thus a subsequent activity would also be considered to

have a significant effect if it would adversely effect a resource that is listed or had been determined eligible for the CRHR. Criteria for listing on the CRHR (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) include the following:

- 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.

Specifically, impacts would be deemed to be significant if there is substantial adverse change by means of physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Per Section 15064.5 (b)(2) of the CEQA Guidelines the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for the purposes of CEQA.
- Cultural resources not found to be eligible for CRHR usually do not require further management consideration. If resources are considered historical resources per CEQA (e.g. eligible for the CRHR) than ground disturbing or other construction related activities could remove or destroy cultural deposits or those characteristics of the resource which may it eligible for the CRHR. Resource altering disturbances could result in the loss of integrity of historical resources, the loss of information, and the alteration of site setting which could be a significant impact.

IMPACT MECHANISMS

It is assumed that the greatest impact to cultural resources, and more specifically archaeological resources on the ground, would occur as a result of construction related activities either from trenching for installation of fiber optic cable facilities, portals excavated for directional boring, grading for access roads, staging areas, stream crossings, or pulling stations, mechanical vegetation removal or other similar types of ground disturbing activities required for installations. Ground-disturbing activities associated with the construction of facilities such as manholes, handholes, and assist points; splice boxes; and regenerator and OP-AMP station foundations pose a point specific and usually angular impact, while those associated with placement of the cable facilities are linear and relatively narrow. A second type of impact could occur from hanging or placing conduits on historical bridges, trestles, or buildings. A third type could occur by the placement of regenerator and/or op-amp station facilities in proximity to historic buildings or features resulting in impacts to the aesthetic and/or context of these resources.

The extent of the particular impact to an archaeological site would depend on the depth and breadth of a given resource and the degree to which the action, e.g., trenching, would intrude into the resource. In the case of historic bridges, trestles, and buildings, the extent of the impact is directly related to the alteration of visual or aesthetic quality of the structure.

Standard routine maintenance would not typically constitute a significant impact. Exceptions might include emergency repairs that required mechanical excavation in sensitive areas, particularly areas that have not been previously disturbed.

MITIGATION APPROACH

As the foregoing discussion indicated, detailed information pertaining to subsequent activities must be established before adequate mitigations may be assigned to address specific cultural resource issues for the proposed activity. Because the degree and breath of specific impacts to cultural resources cannot be addressed until specific activities are determined, the following suite of mitigations are designed to provide a programmatic mitigation approach for possible scenarios on a general scale.

Prior to approval of subsequent activities by the CPUC, Sempra Communications will conduct a cultural resources records and literature search review to ascertain whether cultural resources are present within the vicinity of the proposed activity and/or facilities locations as indicated in further detail in Appendix A and B. This report shall include an evaluation of the nature of any resources and their location relative to the proposed facility elements and associated construction activities. A report of the results of this study shall be prepared by Sempra Communications and submitted to the CPUC for review as part of their work plan. Based on the results of this evaluation, mitigation measures developed and adopted in this Program EIR will be applied as appropriate for the identified resources. Resource avoidance will be the primary mitigation measure. If constraints do not allow for avoidance, then any unavoidable resource, would need to be evaluated for significance prior to proposed construction. Based on the results of this

significance evaluation, mitigation measures will be applied as appropriate for the resource(s). These measures have been developed in this Program EIR that range from none, if it is determined that the resource is not significant, to data recovery and/or monitoring if the resource is considered to be significant.

If requirements should change for subsequent activities after the submittal and approval of the of the above described required cultural resources document (e.g., an access road is needed that was not originally foreseen) and work plan, then a supplemental document to the original approved work plan shall be prepared that contains the results of the additional required research and proposed mitigation measures for the new element(s).

Some circumstances, including proposed activity locations within built environments such as downtown and urban areas where ground surfaces are currently occluded by pavement and/or landscaping, may preclude field survey or resource evaluation/testing. Under such circumstances, construction monitoring by qualified archaeological monitors may be substituted for survey, evaluation/testing, or data recovery. These circumstances will need to be documented in the cultural resources review document.

Impact CUL-1: Possible adverse changes to the significance of historical resources (applies specifically to historic buildings that may be affected by placing connections into historic structures thus altering their physical and aesthetic qualities or a change in their context/setting). (Potentially Significant)

Mitigation Measure CUL-1a: Avoid historical building sites for installation of cable connections, prohibit structural or architectural modifications that would alter the architectural or aesthetic qualities of the building or design additions or modifications in such a manner as to be consistent with the architectural style.

Sempra Communications would not modify existing buildings designated as historic structures or buildings over 45 years of age that have potential to be historic structures. Typically, these buildings are clustered in the older sections of urban areas and within railroad right-of-ways (train depots and manufacturing plants). If it is unavoidable that a historic structure is proposed for use, the potential impact would be evaluated and measures applied to mitigate the impacts. Measures would include prohibiting structural or architectural modifications that would alter the architectural or aesthetic qualities of the building or designing additions or modifications in such a manner as to be consistent with the architectural style.

Significance after Mitigation: Less than significant.

Impact CUL-2: Possible substantial effects can occur to known, but unevaluated prehistoric and historic archaeological deposits from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas). (Potentially Significant)

Trenching and other subsurface excavation in the areas known to contain archaeological sites, or suspected to have such sites, would disturb or destroy significant cultural resources. Cultural resource sites known to exist within power line, railroad or other right-of-ways, that have not been previously tested for significance, and that cannot be avoided, should be tested for their distribution, integrity, and significance, prior to construction. Pre-construction testing is preferable to monitoring for these sites given their potential to be important resources. Native American concerns that construction could affect sacred sites or burials, and the possibility that some form of mitigation requiring data recovery excavation could be required if significant resources are encountered and could not be avoided. Because data recovery can be time consuming and impede construction if it is left until construction is underway, testing to determine the need, if any, for such recovery should be performed as early as possible in the planning stages but after a 75-80% engineering threshold is met.

For sites of concern identified in the proposed work plan proposed by Sempra Communications, particularly in existing right-of-ways or under paved urban roads, construction monitoring by a Native American and qualified archaeologist, followed by either avoidance of resources encountered during monitoring or scientific excavation and analysis of recovered materials in the sensitive areas could serve to mitigate the impacts. Without monitoring and avoidance/excavation, if warranted, construction trenching and subsurface excavation could cause less than significant impacts to resources determined to not be significant resources and could cause significant impact to resources determined to be cultural or scientifically significant or eligible for nomination to the CHL.

Mitigation Measure CUL-2a: Conduct pre-construction archaeological testing (or perform construction monitoring by a Native American and qualified archaeologist in built environments where ground surfaces are currently occluded by pavement and/or landscaping, and therefore may preclude field survey or resource evaluation/testing).

Sempra Communications would conduct pre-construction archaeological testing sites of concern in locations identified in the work plan if avoidance is infeasible. If the sites are determined to not be significant or eligible for nomination to the CHL, no further pre-construction testing or evaluation would be required. Monitoring would be conducted in the area of the site during construction and application of the measures stipulated in the Cultural Resources Procedures (Appendix F) to include avoidance if feasible, or scientific data recovery and analysis if avoidance is not feasible. Where necessary, Sempra Communications would seek Native American input and consultation.

Significance after Mitigation: Less than significant.

Impact CUL-3: Possible substantial effects to potential, poorly recorded, or possibly badly disturbed prehistoric and historic archaeological deposits from ground disturbing

construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas). (Potentially Significant)

Mitigation Measure CUL-3a: Conduct archaeological monitoring.

Sempra Communications would conduct archaeological monitoring during construction in areas that have been identified and verified by the CPUC in the work plan as archaeologically sensitive. If resources are encountered, they would be tested and evaluated for their significance and eligibility for nomination to the CHL. If a resource is determined not significant, no additional mitigation beyond continued monitoring would be required. If the resource is determined to be significant, application of the measures stipulated in the Cultural Resource Procedures would be implemented to include avoidance if feasible, or scientific data recovery and analysis if avoidance is not feasible. Where necessary, Sempra Communications would seek Native American input and consultation, especially with respect to traditional cultural properties that are not normally disseminated through the California Historical Resources Information Centers.

Significance after Mitigation: Less than significant.

Impact CUL-4: Potential location or disturbance of unique paleontological resources during construction. (Potentially Significant)

Installation fiber optic facilities proposed by Sempra Communications may involve shallow excavations in pre-disturbed soils within city streets or in unimproved areas within the project area boundaries. Since significant fossil discoveries are made even in areas designated as low potential, excavation activities could possibly unearth significant paleontological resources throughout the proposed alignments. Should such paleontological resources be located, this would be considered a significant impact.

Mitigation Measure CUL-4a: Conduct paleontological monitoring.

In the event that project construction will take place in a sensitive paleontological setting, construction would be monitored by a qualified paleontologist. If artifacts of paleontological importance such as fossils or animal bones are uncovered during excavation, construction activities will cease, and the site will be surveyed by a qualified paleontologist who would determine the best course of action.

Significance after Mitigation: Less than significant.

Impact CUL-5: Possible substantial effects to human burials from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas). (Potentially Significant)

Trenching and other subsurface excavation in the areas known to contain burials or archaeological sites of the type known to possess burials (occupation sites), or areas suspected to have such sites, could disturb or destroy significant human remains. This could include prehistoric remains or non-Indian pioneers burials. Construction monitoring by a Native American and qualified archaeologist, followed by either avoidance of burials encountered during monitoring or scientific excavation and analysis of recovered materials in the sensitive areas could serve to mitigate the impacts; however Native American groups may perceive impacts from any form of disturbance of human remains. Without monitoring and avoidance/excavation, if warranted, construction trenching and subsurface excavation could cause significant impact to human remains.

Mitigation Measure CUL-5a: Implement Mitigation Measure CUL-3a.

Significance after Mitigation: Less than significant.

REFERENCES – Cultural Resources

Alameda County
Goals, Policies, and Programs of the East County Area Plan of the Alameda County General Plan, Adopted May 5, 1994.

Baumhoff, Martin A.
Environmental Background. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Beals, Ralph L.
Ethnology of the Nisenan. *University of California Publications in American Archaeology and Ethnology* 31(6): 335-414. Berkeley, 1933.

Bean, Lowell J.
Mukat's People: The Cahuilla Indians of Southern California. University of California Press. Berkeley and Los Angeles, 1972.

Cahuilla. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Introduction. In, The Ohlone Past and Present. Compiled and edited by Lowell John Bean. *Ballena Press Anthropology Papers* 42, 1994.

Bean, Lowell J., and Florence C. Shipek

LuiseZo. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Bean, Lowell J., and Charles R. Smith
Gabrielino. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Serrano. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Beardsley, Richard K.
Culture Sequences in Central California Archaeology. *American Antiquity* 14(1):1-28, 1948.

Temporal and Areal Relationships in Central California. *University of California Archaeological Survey Reports* 24-25, 1954, Berkeley.

Beck, Warren A. and Ynez D. Haase
Historical Atlas of California. University of Oklahoma Text, Norman, 1974.

Bedrossian Trinda L. Vertebrate Fossils and the History of Animals with Backbones. *California Geology*, 28:11, pp. 243-259, 1975.

Bedwell, Stephen F.
Prehistory and Environment of the Pluvial Fork Rock Lake Area of South Central Oregon. Unpublished Ph.D. dissertation, Department of Anthropology, University of Oregon, Eugene, 1970.

Bee, Robert L.
Quechan. In *Southwest*, edited by Alfonzo Ortiz. Handbook of North American Indians, vol. 10, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1983.

Blackburn, Thomas C. and Lowell, John Bean
Kitanemuk. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Cameron, Constance
Archaeological Investigations on the Rancho San Clemente, Orange County, California. Archaeological Research Facility, California State University, Fullerton, California, 1987.

Carter, George F.
Pleistocene Man in San Diego. The John Hopkins Press, Baltimore, 1957.

Davis, Emma L., Clark W. Brott, and David L. Weide
The Western Lithic Co-Tradition. *San Diego Museum Paper* 6. San Diego, 1969.

Elsasser, Albert B.
Development of Regional Prehistoric Cultures. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Galvan, P. Michael.
"People of West": The Ohlone Story. *The Indian Historian* 1(2):9-13, 1968.

Gerow, Bert A., and Roland W. Force
An Analysis of the University Village Complex, with a Reappraisal of Central California Archaeology. Palo Alto, California; Stanford University, 1968.

Grant, Campbell
Chumash: Introduction. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Eastern Coastal Chumash. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Harrington, Mark R.
An Ancient Site At Borax Lake. *Southwest Museum Papers* 16, Los Angeles, 1948.

Harwell, Henry O. and Marsha C. S. Kelly
Maricopa. In *Southwest*, edited by Alfonzo Ortiz. Handbook of North American Indians, vol. 10, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1983.

Hicks, Frederic
Ecological Aspects of Aboriginal Culture in the Western Yuman Area. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles, 1963.

Johnston, Bernice E.
California's Gabrielino Indians. Southwest Museum Frederick Webb Hodge Anniversary Publication Fund, Volume III, Los Angeles, 1962.

Kelly, Isabel T.
Coast Miwok. In *California*, edited by R.F. Heizer. Handbook of North American

Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Kelly, Isabel T. and Catherine S. Fowler
Southern Paiute. In *Great Basin*, edited by Warren Azevedo. Handbook of North American Indians, vol.11, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1986.

King, Chester
Protohistoric and Historic Archaeology. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

King, Chester and Thomas C. Blackburn
Tatviam. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Kroeber, Alfred L.
Handbook of the Indians of California. *Bureau of American Ethnology Bulletin* 78. Washington, D. C., 1925.

Levy, Richard
Coastanoan. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Lillard, Jeremiah B., Robert F. Heizer, and Franklin Fenenga
An Introduction to the Archaeology of Central California. *Sacramento Junior College, Department of Anthropology Bulletin* 2, 1939.

Margolan, Malcolm
The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area. Heyday Books, Berkeley, 1978.

Meighan, Clement W., and C. Vance Haynes
Borax Lake Revisited: Reanalysis of the Geology and Artifacts Gives Evidence of an Early Man Location in California. *Science* 167(3922): 1213-1221, 1970.

Moriarty, James R. III
A Separate Origins Theory for Two Early Man Cultures in California. Environmental and Cultural Material for the Batiquitos Lagoon Region. *In San Dieguito-La Jolla: Chronology and Controversy*, edited by Dennis Gallegos, 49-60. San Diego County Archaeological Society Research Paper 1, 1987.

Norris, Robert M. and Robert W. Webb
Geology of California. John Wiley & Sons, Inc., Santa Barbara, 1990.

Orange County Planning Commission
The Physical Environment of Orange County. Orange County Board of Supervisors, Santa Ana, California, 1971.

Riddell, Francis A., and William H. Olsen
An Early Man Site in the San Joaquin Valley. *American Antiquity* 34(2):121-130, 1969.

Robinson, W. W.
The Story of Riverside County. Title Insurance and Trust Company, Los Angeles, 1957.

Rogers, Malcolm J.
An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1(2):167-198, 1945.

Ancient Hunters of the Far West. Union-Tribune Publishing Company, San Diego, 1966.

Shackley, Steven M.
Archaeological Investigations in the Western Colorado Desert: A Sociological Approach. Wirth Environmental Services, a Division of Dames & Moore, San Diego, 1984.

Spier, Robert F. G.
Foothill Yokuts. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Spier, Leslie
Southern Diegueno Customs. *University of California Publications in American Archaeology and Ethnology* 20 Berkeley, 1923.

Stadum, Carol J.
A Student Guide to Orange County Fossils. Chapman College Press, 1973.

Stewart, Kenneth
Mohave. In *Southwest*, edited by Alfonzo Ortiz. Handbook of North American Indians, vol. 10, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1983.

Thomas, David H., Lorann S. A. Pendleton, and Stephan C. Cappannari
Western Shoshone. In *Great Basin*, edited by Warren Azevedo. Handbook of North American Indians, vol.11, W.C. Sturtevant, general editor. Smithsonian Institution,

Washington D.C., 1986.

Wagner, D.L., C.W. Jennings, T.L. Bedrossian, and E.J. Bortugno. Geologic Map of the Sacramento Quadrangle. State of California Resources Agency, Department of Conservation, Division of Mines and Geology. Sacramento, 1981.

Wallace, William J.

A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214-230, 1955.

Post-Pleistocene Archaeology, 9000 to 2000 B.C. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Northern Valley Yokuts. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Southern Valley Yokuts. In *California*, edited by R.F. Heizer. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Warren, Claude N.

The San Dieguito Type Site: M. J. Rogers' 1938 Excavation on the San Dieguito River. *San Diego Museum Paper* 5, San Diego, 1966.

The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* 32(2):168-185, 1967.

Cultural Tradition and Ecological Adaptation on the Southern California Coast. *Eastern New Mexico University Contributions in Anthropology* 1(3):1-14, 1968.

Warren, Claude N., and Delbert L. True

The San Dieguito Complex and Its Place in San Diego County Prehistory. *Archaeology Survey Annual Report*, 1960-1961, pp. 246-291. University of California, Los Angeles, 1961.

White, Raymond C.

Luiseño Social Organization. *University of California Publications in American Archaeology and Ethnology* 48(2) 1963.

Wilson, Norman L., and Arlean H. Town.

Nisenan. In, *California*, edited by R.F. Heizer. Handbook of North American Indians, volume 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1978.

Zigmond, Maurice
Kawaiisu. In *Great Basin*, edited by Warren Azevedo. Handbook of North American Indians, vol.11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C., 1986.

4.6 GEOLOGY, SOILS, AND SEISMICITY

4.6.1 SETTING

INTRODUCTION

The project area encompasses several geographic regions within California and, therefore, includes a multitude of landforms and geologic substrates. The following section provides a generalized overview of these geologic features, their mineral resource potential, and associated geologic hazards within the project area. This section addresses these issues in the context of the proposed project and provides mitigation for hazards determined to be significant.

TOPOGRAPHIC AND GEOLOGIC STRUCTURES

The project area includes several diverse landscapes, which are characterized by large valleys, coastal terraces, large peninsulas, and significant mountain ranges. Given the diversity and breadth of landforms and geologic phenomena throughout the project area, and California at large, descriptions of the geologic settings in California are divided into geomorphic provinces. Portions of the project area extend over six of the eleven geomorphic provinces in California (CGS, 1997a). These provinces are referred to as the Great Valley, Coastal Ranges, Mojave Desert, the Transverse Ranges, the Peninsular Ranges, and the Colorado Desert. The following sections provide brief descriptions of these geomorphic provinces.

Great Valley Province

The Great Valley is an alluvial plain, about 50 miles wide and 400 miles long, between the Coast Ranges and Sierra Nevada. Portions of the project area within the Great Valley Geomorphic Province include the urbanized segments of Sacramento and Fresno counties. The Great Valley is drained by the Sacramento and San Joaquin rivers, which join and enter San Francisco Bay. Sediments that beneath the these valleys are derived from millions of years of erosion and deposition from adjacent mountains to the east and west.

Coast Ranges

The Coast Ranges are characterized by a series of northwest trending mountain ranges (2,000–4,000, occasionally 6,000 feet elevation above sea level) and valleys that are sub-parallel to the San Andreas Fault. Portions of the project area within the Coast Range Geomorphic Province includes the Bay Area counties of Marin, San Francisco, Alameda, Contra Costa, Santa Cruz, Santa Clara, and San Mateo. The Coast Ranges are composed of thick late Mesozoic and Cenozoic sedimentary strata. Mojave Desert

The Mojave Desert geomorphic province occupies approximately 25,000 square miles consisting of a broad interior region of isolated mountain ranges separated by expanses of desert in southern California. The astern portions of Los Angeles, San Bernardino, and Riverside counties are

located within this province. An interior enclosed drainage system and numerous playas[1] characterize this geomorphic province. There are two important fault trends that control topography -- a prominent NW-SE trend and a secondary east-west trend (apparent alignment with Transverse Ranges is significant). Transverse Ranges

The Transverse Ranges are a complex series of mountain ranges and valleys distinguished by an anomalous dominant east-west trend, contrasting to the NW-SE direction of the Coast Ranges and Peninsular Ranges. This geomorphic province includes Ventura County and portions of Los Angeles, San Bernardino, and Riverside Counties and extends approximately 320 miles from Point Arguello in the west to the Little San Bernardino Mountains at the edge of the Mojave and Colorado Desert provinces in the east.

Peninsular Ranges

The Peninsular Ranges are characterized by a series of ranges separated by longitudinal valleys, trending sub-parallel to faults associated with the San Andreas Fault System. The Peninsular Ranges extend into lower California and are bound on the east by the Colorado Desert. Portions of the project area included within the geomorphic province include urbanized areas within Riverside, Orange, Los Angeles, and San Diego counties.

Colorado Desert (Salton Trough)

The Colorado Desert geomorphic province (also referred to as the Salton Trough) is a low-lying barren desert basin, about 245 feet below sea level in part, is dominated by the Salton Sea. The province is a depressed fault block between active branches of alluvium-covered San Andreas Fault with the southern extension of the Mojave Desert on the east. This portion of the project area includes ancient beach rims and silt deposits of extinct Lake Cahuilla and encompasses Imperial County and eastern Riverside County.

SOILS

Soils within the project area are classified by distinguishing characteristics and are tropically arranged within soil associations[2]. The formation of soil depends of factors such as topographical relief, climate, biological interactions, time, and associated parent material[3] on which the soil profile is developed. Soils throughout the project area differ substantially in origin, due to the composition of associated parent material, topographical relief, and climatic regime. In general, the project area will include mainly urbanized areas within each of the fifteen counties. Urban soils tend to be covered by impervious surfaces including, roads, parking lots, sidewalks, and structures. Prior to any urban development, native soils will typically be manipulated to improve

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1 The typically dry and nearly level lake plain that occupies the lowest portions of closed depressions. Such as those occurring on intermontane basin floors.

2 Soil Association – A group of defined and named taxonomic soil units occurring together in an individual and characteristic pattern over a geographic region.

3 Parent Material is the unconsolidated ands more or less chemically weathered mineral or organic matter for which a soil is developed by pedogenic processes.

any associated limitations (e.g. poor or excessive drainage, expansiveness, reaction, shallow depth, etc.).

Soils in the project area are classified according to their pertinent and distinguishing characteristics as defined by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service). There are no sharp demarcations between the properties of one soil individual and those of another. Rather there is a gradual transition in such properties moving from one soil individual to another. NRCS' classification system is based all the associated chemical, biological, and physical characteristics of a particular soil type. A few of these factors may include moisture retention, soil color, texture, structure, mineralogy, salt content, and depth.

The NRCS National Cooperative Soil Survey is a nationwide partnership of federal, regional, state, and local agencies and institutions that cooperatively inventory, investigate, classify, interpret, disseminate, and maintain information about the soils of the United States. The NRCS collects soil data, establishes standards for inventorying, describing and interpreting soils, and produces maps and associated databases. The project area is covered by numerous soil surveys. These surveys will be useful in determining project-specific soil interpretations as alignments are proposed.

STATEWIDE SOIL HAZARDS

Expansive Soils

Expansive soils possess a “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may result over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Typically, soils that exhibit expansive characteristics comprise the upper five feet of the surface. The effects of expansive soils could damage foundations of aboveground structures, paved roads and streets, and concrete slabs. Expansion and contraction of soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift. Because the location of expansive soils are site-specific and can generally be remedied through standard engineering practices, an assessment of expansive soil potential should be conducted as specific-alignments are proposed. This issue is discussed further in the impact analysis.

Corrosivity

Corrosivity pertains to potential soil-induced electrochemical or chemical action that could dissolve or weaken uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and the electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on sulfate and sodium content, texture, moisture content and acidity of the soil. Since standard engineering practices will be

employed during the construction of project-specific alignments and utilize corrosion resistant materials, this issue is not discussed further in this document.

Soil Erosion

Soil erosion is also a natural on-going process that transports, erodes and displaces soil particles through a transport mechanism such as flowing water or wind. Erosion is the physical detachment and movement of soil materials through natural processes or human activities. Depending on the local landscape and climatic conditions, erosion may be very slow to very rapid. The detachment of soil particles can be initiated through the suspension of material in either hydraulic (water) or eolian (wind) setting. The project area is subject to both types of erosion depending on the time of year. The project area lies within a Mediterranean climate subject to moist winters and dry summers. Therefore, during the winter the area is more prone to erosion from water, while in the summer the area is more prone to wind erosion. The inland areas within the southern portion of the project area are characterized by a more arid climate and therefore are even more prone to wind erosion.

Rates of erosion can vary depending on the soil material and structure, placement and human activity. The erosion potential for soils in the project is variable throughout the project area. Soils containing high amounts of silt can be easily eroded while sandy soils are less susceptible. Excessive soil erosion can lead to damage of building foundations, roadways, dam embankments and increased sedimentation to drainage ways.

The effects of excessive erosion range from nuisance problems that require additional maintenance, such as increased siltation in storm drains, to extreme cases where water courses are down cut and gullies develop, which can eventually undermine adjacent structures or vegetation. Human activities that disturb soils in arid regions increase wind erosion potential. The project area includes numerous landscapes from inland desert environments, coastal bluffs, alluvial plains, to steep ridgelines. For this reason, and in conjunction with the activities proposed in Chapter 3.0 Project Description, the erosion hazard is considered a significant issue that is further addressed in the impact analysis.

SEISMICITY

The project area, and California as a whole, has experienced significant seismic events within the past. The San Francisco Bay Area and southern California regions within the project area contain both active and potentially active faults and are considered regions of high seismic activity.[4] The 1997 Uniform Building Code (UBC) locates the entire Bay Area and western southern California regions within Seismic Risk Zone 4. Portions of the project area within the Central Valley are

[4] An *active* fault is defined by the State of California as a fault that has had surface displacement within Holocene time (approximately the last 10,000 years). A *potentially active* fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive. *Sufficiently active* is also used to describe a fault if there is some evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 1997).

located in Seismic Zone 3. Areas within Zone 4 are at the highest risk from earthquakes and consequently, are expected to experience maximum magnitudes and damage in the event of an earthquake. Although both Seismic Zones 3 and 4 are susceptible to earthquake ground shaking and particular seismic design criteria are required under the UBC, minimum requirements for design in Seismic Zone 4 are typically more rigorous those required under Seismic Zone 3.

REGIONAL FAULTS

A fault is a fracture in the crust of the earth along which there has been displacement of the sides relative to one another parallel to the fracture. Most faults are the result of repeated displacements over a long period of time. The project area contains numerous lateral strike slip faults[5] such as the San Andreas fault and various identified and hidden blind thrust faults[6]. These faults are illustrated in **Figures 4.6-1** and **4.6-2**. A fault trace is the surface expression of a particular fault. Buried or blind thrust faults are thought to underlay much of the project area. These "buried" faults do not exhibit readily identifiable traces on the earth's surface and are typically at considerable depth within the underlying geologic formation. Although these faults typically do not offset surface deposits, they can generate substantial ground-shaking.

Over the past 100 years, several earthquakes of magnitude 5.0 or larger have been reported on the active San Andreas, San Jacinto, Elsinore, Garlock, and Newport-Inglewood fault systems, all of which traverse the Southern California region. The northern extent of the San Andreas fault in northern California has also experienced a high level of seismicity. Within the northern California portion of the project area, the San Andreas and Hayward faults are the two principally active fault system that have experienced movement in the last 150 years. Other principal fault systems within the Bay Area region of the project include the Rodgers Creek-Healdsburg fault, the Calaveras fault, San Gregorio-Hosgri Fault Zone, and the Concord-Green Valley fault. Major seismic events along the faults include the 1906 San Francisco earthquake, the 1868 Hayward earthquake, and the 1989 Loma Prieta earthquake. In Southern California, the last earthquake exceeding Richter magnitude 8.0 occurred in 1857. Much more frequent are smaller temblors like the moderate 1971 San Fernando and 1994 Northridge earthquakes; both of these magnitude 6.7 quakes were very damaging. Very recently, a magnitude 7 earthquake affected the region in the Mojave Desert, east of the Los Angeles/San Diego area. **Figure 4.6-1** and **Figure 4.6-2** illustrates the locations of the Quaternary or younger faults in the Southern and Northern California portions of the project area. **Table 4.6-1** provides the slip rate, maximum moment magnitude, recency of faulting for active faults in the vicinity of the project area, and counties in which the fault passes through.

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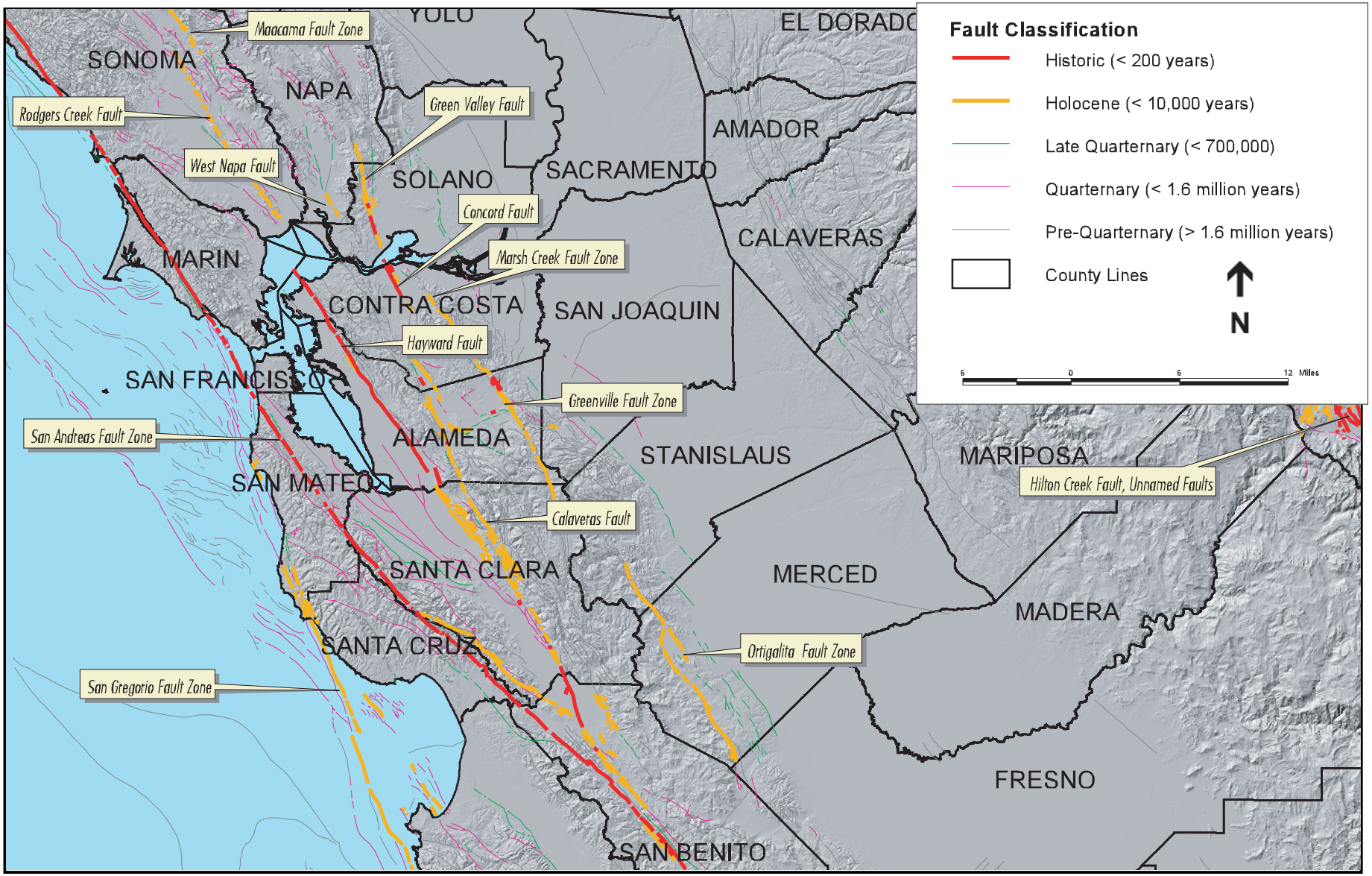
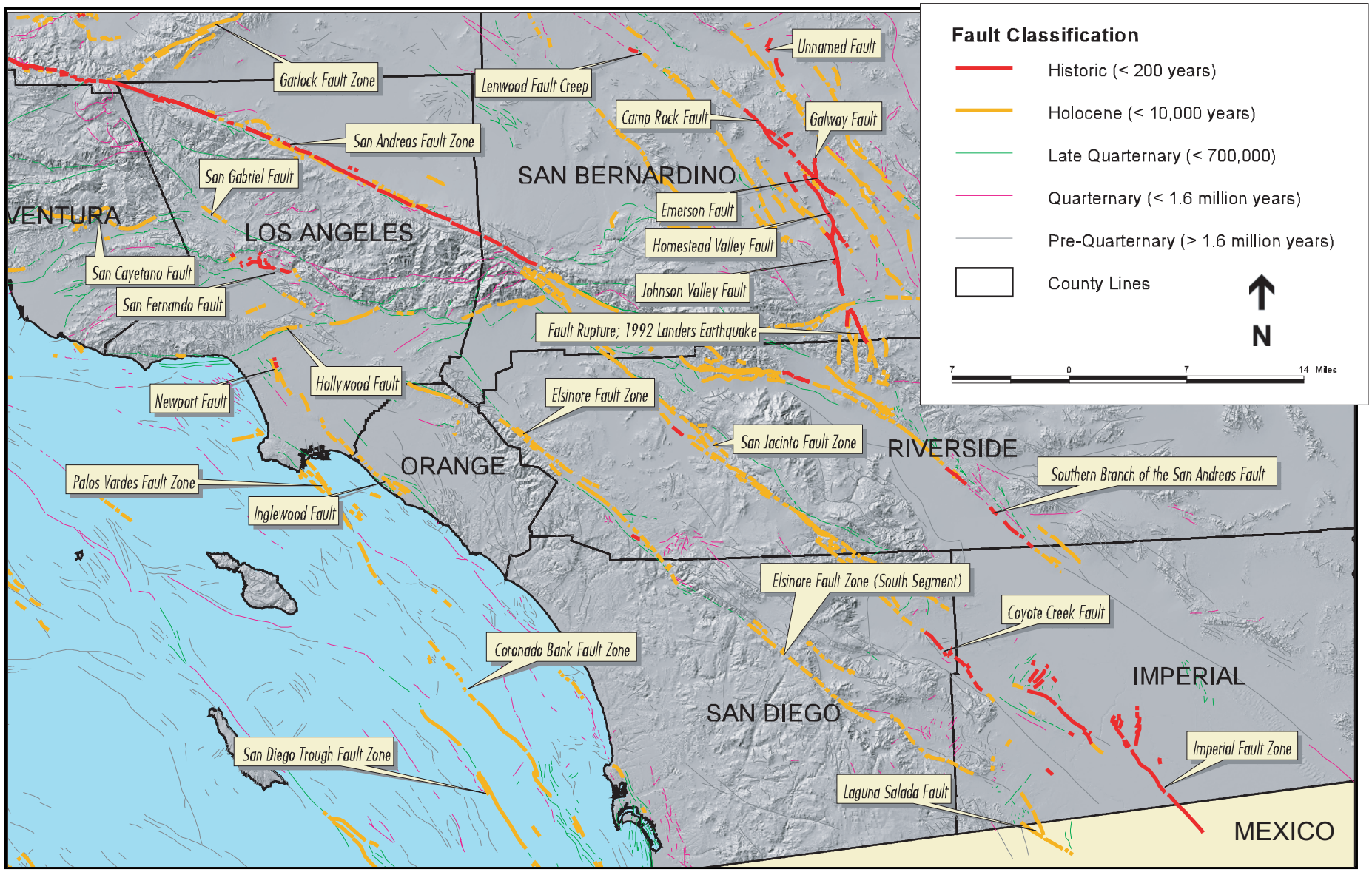
5 A fault in which the movement is essentially horizontal.

6 A reverse fault, whereby the hanging wall has moved up relative to the footwall.



SOURCE: Jennings Fault Activity Map, 1994 and 2001;
modified by Environmental Science Associates, 2002

Figure 4.6-1
Regional Fault Locations in
Northern California



SOURCE: Jennings Fault Activity Map, 1994 and 2001;
modified by Environmental Science Associates, 2002

Figure 4.6-2
Regional Fault Locations in
Southern California

TABLE 4.6-1
MAJOR ACTIVE AND POTENTIALLY ACTIVE FAULTS IN THE PROJECT AREA

Fault Zone	Counties	Recency of Faulting[a]	Slip Rate[b] (mm/year)	Maximum Moment Magnitude[c]
Southern California				
San Andreas	Los Angeles, San Bernardino, Riverside, Ventura, Imperial	Historic	34.00	6.8 to 7.9
San Jacinto	San Bernardino, Riverside, and Imperial	Holocene, Late Quaternary		6.6 to 7.2
Elsinore	Imperial	Holocene	2.50-5.00	6.8 to 7.1
Garlock	San Bernardino	Historic, Holocene	6.00	6.5 to 7.1
Sierra Madre	Los Angeles	Holocene, Late Quaternary	3.00	6.7 to 7.0
Santa Susana	Los Angeles, Ventura	Historic, Late Quaternary	5.00	6.6
Newport-Inglewood	Los Angeles, Orange	Late Quaternary	1.00	6.9
Oak Ridge	Los Angeles	Holocene, Late Quaternary	4.00	6.9
Northern California				
San Andreas (Peninsula and Golden Gate Segments)	Santa Clara, San Mateo, Marin	Historic	17.0	7.3
Hayward	Alameda, Contra Costa	Historic	9.0	6.9
Calaveras	Santa Clara, Alameda	Historic	15.0	6.8
Concord-Green Valley	Solano, Napa	Historic	6.0	6.9
Dunnigan Hills	Yolo	Holocene	N/A	N/A
Healdsburg-Rodgers Creek	Sonoma	Holocene	9.0	7.0
Marsh-Greenville	Contra Costa	Historic	2.0	6.9
Ortigalita	Merced, Stanislaus	Holocene	1.0	6.9
West Napa	Napa	Holocene	1.0	6.5

a Recency of faulting from Jennings, 1994. Historic: displacement during historic time (within last 200 years), including areas of known fault creep; Holocene: evidence of displacement during the last 10,000 years; Quaternary: evidence of displacement during the last 1.6 million years; Pre-Quaternary: no recognized displacement during the last 1.6 million years (but not necessarily inactive). Multiple periods are listed when different branches have shown displacement for different geologic periods.

b Slip Rate = Long-term average total of fault movement including earthquake movement, slip, expressed in millimeters.

c The Maximum Moment Magnitude is an estimate of the size of a *characteristic* earthquake capable of occurring on a particular fault. Moment magnitude is related to the physical size of a fault rupture and movement across a fault. Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CDMG, 1997b). Richter magnitude estimations can be generally higher than moment magnitude estimations. Ranges are provided for certain fault zones due to different magnitudes calculated for different branches of the fault zone.

NA = Not applicable and/or not available.

SOURCES: Jennings, C. W., 1994, Fault Activity Map of California (with Appendix), California Division of Mines and Geology, Geologic Data Map No. 6; Peterson, M. D., Bryant, W. A., Cramer, C. H., 1996, Probabilistic Seismic Hazard Assessment for the State of California by the California Department of Conservation, Division of Mines and Geology, Open File Report 96-08, USGS Open-File Report 96-706.

STATEWIDE SEISMIC HAZARDS

Movements on the previously identified faults and fault systems (see **Table 4.6-1**) could potentially experience displacement in future, thereby resulting in earthquakes throughout much of the project area. Future earthquakes can originate where energy along a fault has built up and has not yet been released in earthquakes. Studies supported by the National Earthquake Hazards Reduction Program enable scientists to evaluate the hazard level in different areas. In Southern California, scientists estimate that the probability of a magnitude 7.0 or greater earthquake by the year 2024 approaches 80 to 90 percent. The four major hazards generally associated with earthquakes are ground shaking, fault surface rupture (ground displacement), liquefaction ground failures, and settlement. (WGCEP 1995).

STATEWIDE GEOLOGIC HAZARDS

The northern and southern portions of the project area have similar soil types, seismic regimes, and geology. The geology in both can vary from upland areas underlain by bedrock to alluvial flatlands. Because of this varied geology, geologic hazards that could affect the proposed project include slope instability (landsliding), settlement, and volcanism.

Settlement

Loose, soft soil material comprised of sand, silt and clay, if not properly engineered, has the potential to settle after a building is placed on the surface. Settlement of the loose soils generally occurs slowly but over time can amount to more than most structures can tolerate. Building settlement could lead to structural damage such as cracked foundations, misaligned or cracked walls and windows. Settlement problems are site-specific and can generally be remedied through standard engineering applications. This issue is further discussed in the impact analysis.

Landslides

Generally, a slope can fail when its ability to resist movement decreases and the stresses on a slope increase. The material in the slope and external processes such as climate, topography slope geometry, and human activity can render a slope unstable and eventually initiate slope movements and failures. Factors that decrease resistance to movement in a slope includes pore water pressure, material changes, and structure. Changes in slope material such as improperly engineered fill slopes can alter water movement and lead to chemical and physical changes within the slope. This impact is discussed further in the impact analysis.

Volcanism

The three most prominent volcanic features in California are Mount Shasta, Mammoth Lakes, and Mount Lassen. The most recent eruption in California was the violent eruption at Lassen Peak (1914-1917) (Jennings, 1994). Mount Shasta has also been extensively studied and some 14 eruptions in the last 10,000 years have been identified and dated (Jennings, 1994). The last eruption of Mount Shasta occurred about 200 years ago. It is reasonable to expect future volcanic

eruptions in California, however the location and timing is uncertain. With the relatively distant proximity of volcanic features from the project area, the risk associated with volcanic hazards is considered low. For this reason, this issue is no longer discussed in the document.

MINERAL RESOURCES

The California Division of Mines and Geology (CDMG) has classified lands within the San Joaquin Valley region into Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act (SMARA) of 1975 (Stinson et al., 1983). The CDMG classified lands within the project area according to the presence or absence of significant sand, gravel, or stone deposits that are suitable as sources of aggregate. Areas classified as MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little or no likelihood exists for their presence. MRZ-2 areas are those where adequate information indicates that significant deposits are present. Areas classified as MRZ-3 contain mineral deposits, but their significance cannot be evaluated from available data. Areas are classified as MRZ-4 where available information is inadequate for assignment to any other MRZ category.

Mineral resource extraction occurs in various portions of California, but is generally limited to non-urban areas. Each county's General Plan is required to identify significant mineral resource areas and apply appropriate land use designations to ensure their future availability. Most of the comprehensive mineral resource mapping in California has been completed for urban areas where there is a high probability that converted land uses would be incompatible with mining. As previously indicated, the project area includes mainly urbanized regions of California and will be limited to existing rights-of-way. Consequently, significant caches of mineral resources will not likely be affected by the proposed project. For this reason, this issue is not discussed further in the document.

4.6.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO GEOLOGY, SOILS, AND SEISMICITY

STATE REGULATIONS

California Building Code

The *California Building Code* is another name for the body of regulations known as the California Code of Regulations (CCR), Title 24, Part 2, which is a portion of the California Building Standards Code (CBSC, 1995). Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable (Bolt, 1988). Published by the International Conference of Building Officials, the Uniform Building Code (UBC) is a widely adopted model building code in the United States. The California Building Code incorporates by reference the Uniform Building Code with necessary California amendments. About one-third of the text within the California Building Code has been

tailored for California earthquake conditions. Although widely accepted and implemented throughout the United States, local, city and county jurisdictions can adopt the UBC either in whole or in part.

Alquist-Priolo Special Study Zones

The Alquist-Priolo Earthquake Fault Zoning Act of 1971 requires that special geologic studies be conducted to locate and assess any active fault traces in and around known active fault areas prior to development of structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures.

The Alquist-Priolo Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. This Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. Surface rupture is the most easily avoided seismic hazard.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The purpose of the Act is to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The program and actions mandated by the Seismic Hazards Mapping Act closely resemble those of the Alquist-Priolo Earthquake Fault Zoning Act.

COUNTY AND CITY CONTROLS

General Plans and Seismic Safety Element

Cities and county governments typically develop as part of the General Plans, safety and seismic elements that identify goals, objectives, and implementing actions to minimize the loss of life, property damage and disruption of goods and services from man-made and natural disasters including floods, fires, non-seismic geologic hazards and earthquakes. General Plans can provide policies and develop ordinances to ensure acceptable protection of people and structures from risks associated with these hazards. Ordinances can include those addressing unreinforced masonry construction, erosion or grading.

4.6.3 IMPACT ANALYSIS

APPROACH TO ANALYSIS

The impact assessment used a qualitative analysis to address project-related impacts in relation to geologic hazards, affects on soil resources, and the primary and secondary effects of earthquakes. Geologic and seismic hazards that, because subsequent activities could expose people to injury

and infrastructure to damage were considered in terms of an adverse impact to public safety. Loss of soil resources from erosion and sedimentation potentially caused by proposed activities were considered in terms of depletion or as having other adverse effects on soil resources. The proposed project elements were evaluated in terms of the level of significance and whether the impacts were considered not significant, less than significant or significant.

IMPACT MECHANISMS

Geology, seismicity, and soil impact mechanisms include damage to subsequent activities by seismic events, static soil movement and erosion. Groundshaking from seismic events can cause secondary hazards such as surface fault rupture, liquefaction and settlement of soils. Settlement can also occur in improperly placed artificial fills and compressible soils when subject to static loads. Initiation of shallow landslides and accelerated erosion can be caused by soil disturbance during the installation of the cable and other system facilities. This analysis addresses impacts that are reasonably foreseeable according to the geographic scope and context of the proposed project.

SIGNIFICANCE CRITERIA

The CEQA Guidelines establish that a significant impact would be expected to occur if the project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

    i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to CDMG Special Publication 42.

    ii) Strong seismic ground shaking.

    iii) Seismic-related ground failure, including liquefaction.

    iv) Landslides.

- Result in substantial soil erosion or the loss of topsoil.

- Be located on strata 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 Uniform Building Code, creating substantial risks to life or property.

- Sediments being discharged at the surface of the site contain materials that would result in significant toxicity or bioaccumulation of contaminants, inhibit revegetation, or result in contaminated vegetation; or

- Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact GEO-1: The project area is traversed by numerous active and potentially active faults. Displacement along any one of these faults could result in significant structural damage to proposed facilities and structures. Ground-shaking associated with the displacement of one of these faults could potentially expose project-related structures to seismic-related hazards, including localized fault rupture, liquefaction, and other related ground failures. With the implementation of standard engineering practices, this impact is considered less than significant. (Less than Significant)

As provided, in Chapter 3.0 of the Project Description, the project would involve the installation of fiber optic cable and association facilities. As stated in Section 3.2 of the Project Description, Sempra Communications would utilize several different methods for the installation of fiber optic cable. These methods to be employed include open trenching, plow and trenching, directional borings, or aerial installation and are described in detail under Section 3.2 of the Project Description. The project may also involve the construction of periodic above-ground facilities referred to as regenerator or OP-AMP stations to reconstruct or boost optical signals over long distances.

The project area will likely experience at least one major earthquake (greater than moment magnitude 7) within the next 30 years. The intensity of such an event will depend on the causative fault and the distance to the epicenter, the moment magnitude and the duration of shaking. Damage due to ground-shaking could disturb or cause breakage to one or more of the previously identified project facilities. The resulting damage to these facilities could result in a temporary disruption of communications on the affected networks, thereby potentially indirectly affecting communications between public service entities and/or emergency service providers. Likewise, if damage from seismically-induced ground failure were to occur, it could temporarily disrupt telecommunications infrastructure and result in periods of interrupted service while the system is inspected and repaired. The impact severity of seismically-induced ground failures would be reduced because the cable system would be placed primarily within existing roadways, on existing electrical towers, and railroad easements that contain engineered fills and are designed to withstand adverse effects of seismically-induced ground failures. Where subsequent activities cross identified Alquist-Priolo Fault Rupture Zones, the infrastructure design will incorporate elements that allow the cable or associated facilities to compensate for surface offsets such as flexible joints in cable segments.

Geotechnical studies conducted as part of the final design phase for subsequent activities would determine susceptibility to geologic and seismic hazards in areas of the proposed activities and

OP-AMP station buildings. Design and construction of these structures would be in accordance with geotechnical recommendations that incorporate applicable UBC standards required by the appropriate local building department. The prefabricated OP-AMP station structures will not be inhabited and are certified by the manufacturer to meet necessary seismic design standards. Therefore, any damage will not affect humans or the environment. Ground-shaking is considered a less than significant impact because the proposed project would not result in an increased exposure of individuals to the adverse effects of ground-shaking or increase the severity of the ground-shaking in the project area. For these reasons, this impact is considered less than significant.

Mitigation Measure: No mitigation is required.

Impact GEO-2: Construction operations and periodic repair operations could result in temporary accelerated erosion and sedimentation from soil disturbance and vegetation removal. (Potentially Significant)

Although erosion is a natural process, accelerated erosion is often caused by human activities. Soils in the project area, many of which are already disturbed, vary widely with respect to their erosion hazard. Ground disturbing activities, including the removal of vegetation, can cause increased runoff rates and concentrated flows, which may result in accelerated erosion and concomitant loss in soil productivity. The eroded material, or sediment, could degrade the quality of receiving waters.

With implementation of Best Management Practices (BMPs) prepared for the project SWPPP, outlined in Section 4.8, Hydrology and Water Quality, and in Section 4.4, Biology, construction impacts to water quality would not be expected to degrade water quality in drainages within the project area, or cause adverse levels of soil erosion.

Mitigation Measure GEO-2a: Implement **Mitigation Measures HYD.1a and BIO.8**

Significance after Mitigation: Less than significant.

Impact GEO-3: The project area could be subjected to geologic hazards including differential settlement, expansive soils, and slope failure. (Less than Significant)

Soil settlement presents a hazard in areas with variable thickness of previous and new fills, as well as natural variations in the thickness and compressibility of the soils. Static or seismically-induced settlement of soils could damage project-related facilities over the life of the project. Settlement would typically be expected to adversely affect above-ground structures rather than the fiber cable. Structures impose additional weight on the soil and can induce settlement. The

impact of settlement is considered less than significant because proper engineering and construction techniques will eliminate this hazard and because any damage that does occur will not have an adverse physical effect on humans or the environment.

Expansive soils will potentially be encountered within finer-textured alluvial deposits along future project-specific alignments. Expansive soils, as defined in Table 18- 1-B of the UBC soils are clay-rich surficial materials that shrink and swell as a result of dehydration of clay materials during periods of wetting and drying. Buried fiber optic cable is generally not impacted by expansive soils, if proper engineering techniques are used. However, expansive soils along underground telecommunications infrastructure could result in distress to above-ground structures, foundations, and sensitive equipment. With the implementation of standard engineering practices, this impact is considered less than significant.

The susceptibility of land (slope) failure is dependent on the slope and underlying geology, as well as the amount of rainfall, excavation or seismic activities. Areas most susceptible to landsliding are characterized by steep slopes and include most existing landforms that exhibit substantial evidence of down-slope creep of surface materials. Typically, applicable geotechnical engineering remedies were previously incorporated into the roadway and railroad design to reduce the likelihood of soil failure. However, in a few areas the installation may potentially require excavation into steep slopes, some of which are subject to mass movement (i.e., landsliding, debris flows). The areas of existing and potential instability will be avoided to the extent practicable. Geotechnical analysis would be conducted in areas where the subsequent activities must pass through a potentially unstable area. Geotechnical recommendations may include cable rerouting or methods to stabilize the cable facilities in areas with unstable slopes. Geotechnical studies during the final design phase would determine susceptibility to slope instability in areas of proposed OP-AMP station construction. Design and construction of OP-AMP stations would be in accordance with geotechnical recommendations that incorporate UBC standards required by the local building departments for construction. The proposed project itself would not increase the potential for slope failures and would not result in exposing people, property or the environment to additional slope stability hazards. Therefore, this impact is considered less than significant.

Mitigation Measure: No mitigation is required.

REFERENCES – Geology, Soils, And Seismicity

ABAG, 1998. Association of Bay Area Governments (ABAG), *The San Francisco Bay Area -- On Shaky Ground*, Supplement Report, http://www.abag.ca.gov/Bayarea/eqmaps/maps/doc, 1998.

Bates, R.L., Jackson, J.A., *Dictionary of Geological Terms*, prepared American Geological Institute, published Garden City, New York, 1984.

Bolt, B., *Earthquakes*, W. H. Freeman and Company, New York, New York, 1988.

California Building Standards Commission, (CBSC), *California Building Code, Title 24, Part 2*, 1995.

California Division of Mines and Geology (CDMG), *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, CDMG Special Publication 117, 1997.

California Division of Mines and Geology (CDMG), *Guidelines for Evaluating the Hazard of Surface Fault Rupture*, CDMG Note 49, 1997a.

California Division of Mines and Geology (CDMG), *How Earthquakes Are Measured*, CDMG Note 32, 1997b.

CDMG, 1997a. California Division of Mines and Geology, Note 36 California Geomorphic Provinces.

CDMG, 2000. California Division of Mines and Geology. Open-File Report 2000-19 – A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally-Occurring Asbestos.

Lander, J. and Lockridge 1989, U.S. Tsunamis, 1690-1988, NOAA, National Geophysical Data Center, Boulder, Co.

Norris, R.M. and Webb, R.W., *Geology of California*, Second Edition, John Wiley and Sons, publisher, 1976.

Oakeshott, Gordon B., *California's Changing Landscapes*, McGraw-Hill Publishing Company, 1978.

Peterson, M.D., Bryant, W.A., Cramer, C.H., *Probabilistic Seismic Hazard Assessment for the State of California*, California Division of Mines and Geology Open-File Report issued jointly with U.S. Geological Survey, CDMG 96-08 and USGS 96-706, 1996.

SCAG, 1998. Southern California Association of Governments, *1998 RTP Draft MEIR*, November 1997.

Stinson et al., 1983. Stinson, M. C., M. W. Manson, J. J. Plappert, and others, Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area, Part II, Classification of Aggregate Resource Areas South San Francisco Bay Production-Consumption Region, California Division of Mines and Geology Special Report 146, 1983.

Working Group on California Earthquake Probabilities (WGCEP). 1995. *Seismic Hazards in Southern California: Probable Earthquakes, 1994-2024*: Bulletin of the Seismological Society of America, v. 85, no. 2, p. 379.

4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7.1 SETTING

The project area encompasses urbanized areas primarily characterized by industrial, commercial, and residential land uses. Construction involving soil disturbance that would take place for the installation of fiber optic cable facilities would potentially occur within existing right of ways of public roadways, railroads, and utility lines. The construction of OP-AMP/regeneration stations may also involve minimal soil disturbance. The potential for ground contamination is higher in industrial areas than residential, however given the size and diversity of the area covered by the project, there are likely thousands of hazardous waste generators, leaking tank sites, and toxic spills within the project area.

In order to assess potential impacts of the project, hazardous materials record searches would be conducted for any alignments involving ground disturbance. The record searches would include updated database searches of the seven state and federal lists that document known locations of hazard material releases. These lists include the following:

- "Calsites" -- California Dept. of Health Services/Cal EPA
- Cortese List -- Office of Planning and Research
- Leaking Underground Storage Tanks (LUST) -- Regional Water Quality Control Board
- CERCLIS -- EPA Superfund sites
- National Priority List (NPL) -- US EPA Priority Superfund sites
- Annual Work Plan (AWP) -- California EPA
- Spills, Leaks, Investigations, and Clean-ups (SLIC) – California Regional Water Quality Control Board

The Cortese and LUST lists primarily document release incidents from underground storage tanks and would be searched within a 1000-feet of subsequent activities. The other lists identify more extensive contamination incidents in which the state or the EPA is the lead agency.

TYPES OF HAZARDOUS MATERIALS

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. Chemical and physical properties cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity. These properties are defined in the California Code of Regulations (CCR), Title 22, Sections 66261.20-66261.24. Within typical construction sites, materials that could be considered hazardous include fuels, motor oil, grease, various lubricants, solvents, soldering equipment, and glues. Also, excavation may expose buried hazardous materials resulting from prior use of the proposed site or adjacent property to the sites.

A "hazardous waste" is any hazardous material that is discarded, abandoned, or to be recycled. The criteria that render a material hazardous also make a waste hazardous (California Health and Safety Code, Section 25117).

REGULATORY BACKGROUND

Hazardous materials management is subject to numerous laws and regulations at all level of government. Additionally drinking water standards for hazardous materials are mandated by both federal and state agencies. A brief summary of the regulations promulgated by federal and state regulatory agencies that oversee hazardous materials management and drinking water standards is provided below.

The EPA regulates the management of hazardous materials and wastes. The primary federal hazardous materials and waste laws are contained in Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Toxic Substances Control Act (TSCA). These laws apply to hazardous waste management, soil and groundwater contamination, and the controlled use of particular chemicals. In California, EPA has delegated most of its regulatory responsibilities to the state. TSCA allows EPA to ban (or phase out) the use of chemicals that may present unreasonable risks to public health or the environment.

The state agencies most involved in enforcing public health and safety laws and regulations include the Cal-EPA Department of Toxic Substance Control (DTSC), the California Occupational Safety and Health Administration (Cal-OSHA), the San Francisco Bay RWQCB, the Bay Area Air Quality Management District, and the California Integrated Waste Management Board.

DTSC enforces hazardous materials and waste regulations in California under the authority of EPA. California's Hazardous Waste Control Law incorporates the federal hazardous materials and waste standards of RCRA, but California's regulations are stricter in many respects.

In California, Cal-OSHA assumes primary responsibility for enforcing worker safety regulations such as the federal Hazard Communication Program regulations. Cal-OSHA regulations are found in the CCR Title 8. Although Cal-OSHA regulations have incorporated federal OSHA standards, Cal-OSHA regulations are generally more stringent than those of the federal government.

HAZARDOUS MATERIALS MANAGEMENT

Federal and state laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. The Federal Emergency Planning and Community Right-to-Know Act of 1986 imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of Hazardous Materials Business Plans and disclosure of hazardous materials inventories. A business plan includes information such as an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored,

an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, the California Environmental Protection Agency (Cal-EPA) DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. The laws and regulations are administered locally by Alameda County Environmental Health Department, Hazardous Materials Division.

Under certain circumstances, a business must prepare a Risk Management Plan (RMP) to minimize off-site risks associated with the storage and use of acutely hazardous materials. The new RMP program, which was developed under Senate Bill 1889 to comply with Section 112(r) of the federal Clean Air Act, replaced the California Risk Management and Prevention Program (RMPP). The regulations that define the RMP process are given in the California Health and Safety Code, Sections 25531-25543.3. An RMP provides additional planning information that covers equipment and systems safety, operating procedures, preventive maintenance, upset risk assessments, and safety auditing. The State Office of Emergency Services has primary responsibility for regulating acutely hazardous materials. Local governments have the lead role for working directly with businesses in implementing this program.

Storage of hazardous materials in underground tanks is regulated by the State Water Resources Control Board, which has overall responsibility for implementing all regulations set forth in Title 23 of the CCR. State standards cover installation and monitoring of new tanks, monitoring of existing tanks, and corrective actions for removed tanks. State underground storage tank regulations, including permitting for all hazardous materials storage, are enforced by local fire departments.

HAZARDOUS MATERIALS TRANSPORT

The U.S. Department of Transportation regulates hazardous materials transportation between states. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and Caltrans. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

HAZARDOUS WASTE MANAGEMENT

DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the state Hazardous Waste Control Law. Both laws impose “cradle to grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

LIKELIHOOD OF CONTAMINATION AND KNOWN CONTAMINATION SITES

Record Searches and Phase I Site Assessments

The proposed project area may potentially contain a multitude of existing hazardous sites. They are more likely in urban areas with industrial uses, however they are likely to be scattered throughout the project area. When subsequent activities are proposed, record searches shall be conducted for the proposed activities to identify high risk areas. Phase I site assessments will also be conducted for the locations of regenerator/OP-AMP stations once they are identified.

Methane and Hydrogen Sulfide Gas Seepage

Naturally occurring methane gas and hydrogen sulfide gas (H_2S) have been known to migrate into shallow geology deposits in certain areas of the Southern California region. In 1985, an explosion occurred in the basement of a commercial retail outlet store (Ross Dress for Less) in Los Angeles caused by methane accumulation through subsurface seepage. Methane gas and hydrogen sulfide (H_2S) can follow fissures or improperly abandoned oil wells to the surface or near-surface strata from deeper oil producing formations. Areas above known petroleum resources are of particular concern including central Los Angeles (Fairfax District), Huntington Beach, and Brea. Methane may be trapped under impervious surfaces where concentrations can cause explosion or hazardous breathing conditions. H_2S can be toxic to humans at elevated concentrations. Excavations may experience pockets of accumulated methane or H_2S gas at shallow depths.

4.7.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO HAZARDS AND HAZARDOUS MATERIALS

LOCAL OVERSIGHT PROGRAMS

The Local County Department of Environmental Health is commonly the primary agency responsible for the management of hazardous materials and wastes in a given area. The department is responsible for hazardous waste generator and hauler inspections, underground storage tank regulation, emergency response, hazardous site cleanup, and waste recycling and recovery. Additional information can be found in a County's *Hazardous Waste Management Plan*.

Within some municipalities, the local fire department may be responsible for implementation of the Local Oversight Program (LOP). The LOP implements and tracks various hazardous materials programs, including remediation of identified releases of hazardous materials.

4.7.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Impact HAZ-1: Possible temporary exposure to or release of hazardous materials during construction. (Potentially Significant)

The proposed project would not require long-term storage, treatment, disposal, or transport of significant quantities of hazardous materials; however, small quantities of hazardous materials may be stored, used, and handled during ground disturbing construction operations. These relatively small quantities would be below reporting requirements for hazardous materials business plans and would not be considered to pose public health and safety hazards through release of emissions. The hazardous materials anticipated to be used are small volumes of petroleum hydrocarbons and their derivatives (e.g., gasoline, oils, lubricants, and solvents) required to operate the construction equipment and bentonite for boring lubrication. These materials would generally be used by excavation equipment, generators, and other construction equipment and would be contained within vessels engineered for safe storage. Due to the rate of installation, storage of significant quantities of these materials at the construction site is not anticipated. Rather, tender vehicles would most likely provide fuel and lubricant to construction equipment on a daily basis and would be mobilized from an off-site location. Spills during on-site fueling of equipment or an upset condition (i.e., puncture of a fuel tank through operator error or slope instability), could result in a release of fuel or oils into the environment, including sensitive waterways within the vicinity of the proposed activity.

Materials proposed for use in conduit typically include polyethylene and polyvinyl chloride (PVC). Polyethylene is a common inert plastic used to fabricate soda bottles (PET bottles) and children's toys and does not pose an environmental hazard. Polyvinyl chloride is also an inert material commonly used in the residential community for sprinkler piping. While vinyl chloride, a known toxic substance, is used in the production of PVC piping, once fabricated (polymerized), PVC has no vapor pressure and does not pose an immediate environmental hazard. Degradation of some PVC products (such as window blinds) has been shown to release lead dust and chlorine to the environment over time, given exposure to sunlight. However, fiber optic cable facilities would be buried in over 3 feet of soil and would not be exposed to environmental conditions that would result in substantial degradation. No mitigation is required.

The option of having 250-gallon aboveground fuel tanks on-site at the regenerator/OP-AMP stations if required for diesel generator use, would involve a potential risk for accidental release, as well as being a fire hazard.

Subsurface hazardous materials may be encountered during construction. During construction, the construction team may encounter unexpected materials that may be considered hazardous waste once they are exposed. Procedures of proper handling and disposal are established by federal, state, and local regulations. Sempra Communications' contractors will be trained in the handling of such materials prior to construction. They would also comply to these regulations by

preparing a Hazardous Materials Management/Spill Prevention Plan, a Health and Safety Plan, and a Hazardous Materials Business Plan and making them available to all contractors on the project.

The purpose of the Hazardous Materials Management/Spill Prevention Plan is to provide on-site construction managers, environmental compliance monitors, and regulatory agencies with a detailed description of hazardous materials management, spill prevention, and spill response/cleanup measures associated with the construction of project elements. The primary objective of the plan is to prevent the spill of hazardous materials. Elements of the plan shall include, but not be limited to, the following:

- A discussion of hazardous materials management, including delineation of hazardous material and hazardous waste storage areas, access and egress routes, waterways, emergency assemble areas, temporary hazardous waste storage areas;
- Spill control and countermeasures, including employee spill prevention/response training; and
- Notification and documentation procedures.

The Health and Safety Plan would include a contingency plan for hazardous materials and waste operations, and would be submitted to the agency with jurisdiction before site activities could proceed. The Health and Safety Plan, applicable to all excavation activities, would establish policies and procedures to protect workers and the public from potential hazards posed by hazardous wastes. The plan would be prepared according to federal and Cal-OSHA regulations for hazardous waste site Health and Safety Plans.

This Health and Safety Plan would also provide for proper storage and/or disposal of any contaminated soils that meet the definition of a hazardous waste. Such a protocol could include off-site treatment of contaminated materials or disposal at an appropriate landfill.

Sempra Communications would prepare a Hazardous Materials Business Plan for any regenerator/OP-AMP station equipped with a fuel tank larger than 55-gallons. In addition to the above requirements, Sempra Communications would also implement the following mitigation measures to reduce this impact to a less than significant level.

Mitigation Measure HAZ-1a: Ensure proper labeling, storage, handling, and use of hazardous materials.

Sempra Communications would ensure proper labeling, storage, handling, and use of hazardous materials in accordance with best management practices and the Occupational Safety and Health Administration (OSHA)'s HAZWOPER requirements. Sempra Communications would ensure that employees are properly trained in the use and handling of these materials and that each material is accompanied by a material safety data sheet. Additionally, any small quantities of hazardous materials stored temporarily in staging areas will be stored on pallets within fenced and

secured areas and protected from exposure to weather. Incompatible materials will be stored separately, as appropriate.

To avoid unexpected releases of hazardous materials, Sempra Communications would include individuals trained in accordance with the OSHA's HAZWOPER requirements. Additionally, Sempra Communications would have a written plan outlining how to respond if hazardous materials are unexpectedly encountered. The plan will specify identification, handling, reporting, and disposal of hazardous materials. All hazardous waste materials removed during construction, to the extent necessary to ensure the area can be safely traversed, will be handled and disposed of by a licensed waste disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility. Sempra Communications would require in its contracts that contractors meet federal, state, and local requirements.

Mitigation Measure HAZ-1b: Report all significant releases or threatened releases of hazardous materials.

All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled must be immediately reported if the spill has entered or threatens to enter a water of the State, including a stream, lake, wetland, or storm drain, or has caused injury to a person or threatens injury to pubic health. Immediate notification must be made to the local emergency response agency, or 911 and the Governor's Office of Emergency Services (OES) Warning Center at 1-800-852-7550.

For non-petroleum products, additional reporting may be required if the release exceeds federal reportable quantity thresholds over a release period of 24 hours as detailed in Section 25359.4 of the California Health and Safety Code and Title 40, Section 302.4 of the CFR.

All construction personnel, including environmental monitors, shall be aware of state and federal emergency response reporting guidelines. In California, spill notification guidance is summarized in the OES Hazardous Materials Unit's *California Hazardous Material Spill/Release Notification Guidance* (OES 1999). Reportable quantities for federal hazardous substances can be found in Table 302.4 of 40CFR 302.3. Guidance for federal notification is also provided in the *California Hazardous Material Spill/Release Notification Guidance* manual.

Mitigation Measure HAZ-1c: Implement dust abatement program.

As discussed in the Air Quality section of this Chapter, Sempra Communications would prepare and implement a Dust Abatement Program. This Dust Abatement Program would minimize potential public health impacts associated with exposure to contaminated soil dust.

Mitigation Measure HAZ-1d: Reduce excavation impacts.

If at any time during construction, soil and or sediment are suspected of being contaminated by visual observations of debris, discoloration or sheen, and/or odor, Sempra Communications

would monitor and analyze excavated material with a photo-ionization detector to determine the potential for soil contamination and the need for specialized soil-handling procedures to reduce excavation impacts in areas of suspected contamination.

Significance after Mitigation: Less than Significant

Impact HAZ-2: The project could require disposal of potentially contaminated soils. (Potentially Significant)

As explained in the setting section, the potential exists for contaminated soil or groundwater to be encountered during excavation or dewatering activities of conduit installation. If encountered, contaminated materials may be classified as a hazardous waste, a designated waste, or a special waste, depending on the type and degree of contamination. Disposal of excavated soils as standard demolition waste or use as fill for another construction site could result in a significant impact if those soils are contaminated. Disposal of materials in the vicinity of unknown but potentially present site contamination could pose a hazard to people, or animal or plant populations.

Mitigation Measure HAZ-2a: Conduct a list search of all subsequent activities requiring excavation.

A list search of known state and federal hazardous waste sites and leaking underground tanks within 1,000 feet of the excavation would be conducted prior to construction to identify high risk areas, where a moderate or high potential for encountering contaminated soil or groundwater may exist during shallow (six feet or less) excavations.

Mitigation Measure HAZ-2b: Characterize excavated materials for disposal.

Within high-risk areas identified by **Mitigation Measure HAZ-2a,** excavations of soil and or sediment that are suspected of being contaminated by visual observations of debris, discoloration or sheen, and/or odor would be observed by a trained health and safety professional equipped with an organic vapor analyzer (or other appropriate methods for detecting anticipated contaminates) to screen excavated materials and ensure worker safety. If contamination is encountered, excavated soils would be segregated and sampled relative to the profiling requirements of the accepting landfill, and disposed of in accordance with policies of the accepting landfill and applicable regulations.

Mitigation Measure HAZ-2c: Test groundwater.

Conduct groundwater testing for petroleum hydrocarbons before dewatering is performed. Treatment would be applied, in consultation with the applicable Regional Water Quality Control

Board and/or wastewater treatment plant operators, to ensure that all discharges meet applicable water quality requirements.

Significance after Mitigation: Less than Significant.

Impact HAZ-3: Possible exposure of the public or environment to hazardous materials sites. (Less than Significant)

As described in **Mitigation Measure HAZ-2a** a database list search would be performed for all subsequent activities requiring excavation prior to construction in order to locate areas that may be viewed as potential areas of hazardous materials contamination or locations where it is permitted to perform various hazardous waste activities.

State and federal laws regulate the manner in which contamination and hazardous conditions are investigated and remediated. Contaminated sites can be expected along some of the project routes, particularly in highly urbanized areas. The EPA and Cal-EPA maintain databases listing known contaminated sites. The databases include information on leaking underground storage tanks; hazardous waste generators; treatment, storage, and disposal facilities; sites known to have contaminated groundwater; and sites currently undergoing remediation or corrective action. Coordination with waste disposal activities with local regulatory agencies will be needed along the future alignments. This impact is considered less than significant because all listed hazardous materials sites would be identified prior to construction and excavated contaminated soils would be disposed of according to policies of the accepting landfill and applicable regulations, as described in **Mitigation Measure HAZ-2b**

Mitigation Measure: No mitigation is required.

Impact HAZ-4: Possible temporary limited emergency access. (Less than Significant)

The proposed project may involve the operation of heavy machinery. Emergency response times may be affected in areas where the proposed routes are adjacent to or within road rights-of-way. Emergency access will be regulated as a condition of road encroachment permits by the applicable regulatory agency. Also, as discussed in the Traffic and Transportation section of this chapter, a traffic control plan shall be prepared as required by the governing agency to further reduce impacts on traffic and emergency response vehicles and programs to less-than-significant levels.

Mitigation Measure: No mitigation is required.

Impact HAZ-5: Potential safety risk to employees from high voltage. (Less than Significant)

The installation of fiber optic cable facilities along transmission tower lines would expose workers to high voltage electricity. For all overhead transmission line installation, worker safety considerations require that the line(s) be deenergized during critical construction periods. The deenergization, or "outage," would be coordinated with the California Independent System Operator (ISO) to ensure that customer service is not affected. In addition, electrical utilities, such as SDG&E, would require the use of their standard construction safety transmission line operating procedures. Only trained workers would be used for installation methods along transmission towers. The development of a Health and Safety Plan as described in **Impact HAZ-1** would reduce this impact to a less than significant level.

Mitigation Measure: No mitigation is required.

Impact HAZ-6: OPGW installation may cause possible safety hazard due to helicopter or other aircraft in the vicinity of public or public-use airport. (Potentially Significant)

The proposed project may involve fiber optic cable facility installation within an area covered within an airport land use plan or within 2 miles of an airport. Subsequent activities would not require permanent location of people, potentially resulting in ongoing safety hazards. With the implementation of the following mitigation measure, this impact is considered less than significant.

Mitigation Measure HAZ-6a: Prior to the final approval of subsequent actions, conduct the land use plan review and consultation as specified in Mitigation Measure LUP-1.

Mitigation Measure LUP-1 requires a procedure for review with appropriate land use planning guidance documents, including airport land use plans, to ensure consistency. Any specific limitations or requirements for construction or development within these jurisdictions shall be determined and become conditions of approval prior to the authorization of a project phase to ensure public safety.

Impact HAZ-7: Possible Temporary Exposure of People or Structures to Wildland Fires (Potentially Significant)

If construction occurs on or immediately adjacent to wildlands, structures and people could be at risk if wildland fires are started by construction of the proposed project. This impact is considered potentially significant.

Mitigation Measure HAZ-7a: Prepare a Fire Prevention and Management Plan.

A Fire Prevention and Management Plan will be prepared and implemented for construction in project areas with fire danger potential, such as areas covered in fire fuels like tall, dry grasses. The intent of this plan may be incorporated in requirements of local governing entities such as city or county planning departments.

REFERENCES – Hazards and Hazardous Materials

Los Angeles County Transportation Commission / U.S. Department of Transportation, Federal Transit Authority, Final Supplemental Environmental Impact Statement/Report, Los Angeles Rail and Rapid Transit Project – Metro Rail for the Mid-City Segment from Wilshire/Western to Pico/San Vicente in the City of Los Angeles with Stations at Olympic/Crenshaw and Pico/San Vicente, August 1992.

City of San Diego, Planning Department, "Progress Guide & General Plan," Revised and Updated June 1989. San Diego, California. Via internet at http://www.ci.san-diego.ca.us/

County of San Diego Department of Environmental Health Hazardous Materials Division, County of San Diego's Hazardous Waste Management Plan 1989-2000, Issued May 1989. San Diego, California.

U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, *Pocket Guide to Chemical Hazards*, 1990.

4.8 HYDROLOGY AND WATER QUALITY

4.8.1 SETTING

The project area includes several major watersheds that support significant and substantial beneficial uses for both wildlife and people where sustaining water quantity and quality is an important objective. Water management in the State of California is divided between nine Regional Water Quality Control Boards (RWQCBs). Each of these is responsible for the protection of the beneficial uses of the surface and ground water in their assigned area. The fifteen different counties included in the project area encompass seven of the nine Water Board Regions. Beneficial uses are defined by the resources, services, and qualities of these aquatic systems and are the ultimate goals of protection and achieving high water quality by the State Water Resources Control Board (SWRCB) and the U.S. Environmental Protection Agency (EPA). Due to the programmatic nature of this document and the extent of the project area, all the major surface waters and their beneficial uses where not identified herein. As subsequent activities are proposed, the major surface waters and their beneficial uses of any drainages to be crossed would be identified. The hydrologic setting for the project area is broken down by Region and described below in terms of surface and groundwater resources and their respective water quality.

SAN FRANCISCO BAY REGION

Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Santa Clara Counties all fall within the San Francisco Bay RWQCB's jurisdictional authority. The San Francisco Bay is the largest coastal embayment on the Pacific Coast, with an area of over 400 square miles. Both the Sacramento and San Joaquin Rivers drain to the Bay, carrying runoff from California's Central Valley. Many smaller rivers and creeks drain from the coastal mountain areas into the Bay. The Bay is generally divided into five regions based upon differing physical characteristics—Suisun Bay, San Pablo Bay, Central Bay, Lower Bay, and South Bay. The Lower Bay extends from the Bay Bridge to the Dumbarton Bridge. This part of the Bay receives flow from no major rivers, and thus is less influenced by fresh water inflow than the north Bay regions. This area does receive runoff from extensively urbanized areas. The major drainages in this area are San Leandro, San Lorenzo, Alameda, and San Mateo Creeks, as well as the Suisan Bay, the San Pablo Bay, and the Central Bay. The South Bay extends from Dumbarton Bridge south to the mouths of Coyote Creek and Guadalupe River.

Surface Water Resources

Major surface water drainages that occur within this project region include substantial creeks that drain the Oakland and Hayward Hills within the Diablo Range (East Bay Plains), the Santa Clara Valley, and the Santa Cruz Mountains. In addition there are numerous flood control channels and drainages that drain stormwater runoff from urban areas. When subsequent activities are proposed, the beneficial uses of drainages potentially affected shall be identified at that time.

Groundwater Resources

Ground water is defined as subsurface water that occurs beneath the ground surface in fully saturated zones within soils and other geologic formations. Where ground water occurs in a saturated geologic unit that contains sufficient permeability and thickness to yield sufficient water to sustain a well or spring, it can be defined as an aquifer. A ground water basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers.

The groundwater aquifers in the Bay Area Region are primarily comprised of alluvial sediments deposited in the intermountain structural depression formed by the Santa Cruz Mountains and the Diablo Range. San Francisco Bay occupies the central portion of this structural depression and typically is separated from the major aquifers by a significant aquitard (layer of fine sediments that retards water transmission) formed by what is commonly referred to as “Bay Mud” (Santa Clara Valley Water District, 1989). This aquitard allows for the use of the deep aquifers in close proximity to the surface seawater body that is San Francisco Bay. Shallow and smaller unconfined aquifers do exist above the aquitard but typically have poor water quality.

Water Quality

Water quality is one of the important factors affecting the attainment of beneficial uses in San Francisco Bay. Water quality influences habitat conditions and affects the distribution and abundance of biota in the Bay. Water quality of the Bay is affected by freshwater inflows, tidal mixing, urban and construction runoff, municipal and industrial discharges, and atmospheric deposition. The water quality parameters of greatest interest for the Bay include salinity, temperature, pH, nutrients, dissolved oxygen, coliform bacteria, trace contaminants, and suspended particulates (sediment).

Suspended particulates include microorganisms and inorganic matter that may result in excessive turbidity, discoloration, or other nuisance conditions. Suspended particulate concentrations in the Bay are influenced by sediment resuspension, tidal mixing, primary productivity, and particulate loadings (erosion and sediment transport) from riverine and runoff sources. Fine particulates are transported and deposited throughout the Bay with heaviest deposits in quiescent, lower energy areas of the Bay. Suspended particulate levels attenuate the transmission of light in Bay waters. At elevated concentrations, particulates may deposit on the benthic layer, smothering bottom-dwelling organisms or causing anaerobic conditions. Construction activities that disturb land cover and expose soil layers can be substantial sources of suspended particulates.

Section 303(d) of the Clean Water Act has led to the generation of a list of water quality limited streams and other waterbodies. These waterbodies are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. The Lower San Francisco Bay is impaired due to elevated levels of copper, mercury, nickel, exotic species, diazinon, polychlorinated biphenyls (PCBs), chlordane, DDT, Dieldrin, Dioxin, and Furan. These elevated levels are attributed to inputs from the following sources: atmospheric deposition, ballast water, industrial and municipal point sources, natural sources, non-point sources, resource extraction, and potential unknown sources (EPA, 2000).

CENTRAL COAST REGION

The Central Coast Region extends from Santa Clara County south to northern Ventura County, enclosing Santa Cruz County. The mountain ranges of Diablo, Gabilan, and Santa Lucia Ranges dominate the terrain. Between these are the broad valleys of the San Benito and Salinas River.

Surface Water Resources

Major surface water drainages that occur within this project region include substantial creeks that drain the Santa Cruz Mountains and the Ben Lomond Mountains. Principal streams of the region include the San Lorenzo, Salinas, Carmel, Santa Maria, Santa Ynez, and Pajaro Rivers. The largest stream is the Salinas, which drains approximately 40 percent (or 4,600 square miles) of the total watershed area. In addition there are numerous flood control channels and drainages that drain storm water runoff from urban areas.

Groundwater Resources

The groundwater aquifers of the area are primarily composed of continental and marine deposits and are the principal aquifers found throughout Santa Cruz and northern Monterey Counties. Groundwater throughout the Central Coast Region, except for that found in the Soda Lake Subbasin, is suitable for agricultural water supply, municipal and domestic water supply, and industrial use. Soquel Creek serves about 45,000 people in the city of Capitola and unincorporated areas of the county, including Aptos, La Selva Beach, Seacliff, Rio del Mar and Seascape. Current demand is about 5,400 acre-feet a year, and officials project demand will increase to a maximum of 7,500 acre-feet in 2030. Recharge of the aquifers occurs primarily through percolation of rainfall and infiltration of stream-flows.

Water Quality

Adequate water quality for many beneficial uses in the Central Coastal Region is in short supply. Excessive salinity or hardness of local ground waters are problems that are frequently encountered. Agricultural activities and vineyard development are dominant sources of pollution in this Region, resulting in: erosion and sedimentation; nitrate contamination; loss of riparian corridors, wetlands, and stream and floodplain functions; as well as threatening the health of the region's numerous bays and estuaries. An additional nonpoint source of contamination is urban runoff containing oil and grease, pathogens, animal wastes, sediments, pesticides and nutrient pollution.

CENTRAL VALLEY REGION – Sacramento and San Joaquin River Basin

Sacramento County falls within the Central Valley RWQCB (CVRWQCB). The project area encompasses several major watersheds within the Sacramento River Basin. These watersheds support significant and substantial beneficial uses for both wildlife and people where sustaining water quantity and quality is an important objective. Subsequent activities could occur within the Sacramento River Basin or the San Joaquin River Basin, including all watersheds tributary to the Sacramento River and north of the Cosumnes River.

Surface Water Resources

The Sacramento River region is the main water supply source for much of California's urban and agricultural areas, and together with the San Joaquin River Basin provides 51% of the State's water supply (DWR, 1998). Surface waters potentially affected by future actions may include creeks and drainages surrounding Sacramento. Major surface waters that occur within the project area include substantial creeks that drain the Sacramento, San Joaquin and American Rivers. Additionally, the subsequent activities could cross numerous flood control channels and drainages that drain stormwater runoff from urban areas generally along the banks of major streams, washes, and rivers.

Groundwater Resources

The project area overlies the Sacramento Valley Groundwater Basin, which is a sub-section of the Greater Central Valley Basin. The water is recharged by local precipitation, contributions from peripheral basins, and through percolation from the rivers traversing the area. Beneficial use of the Sacramento Valley Groundwater Basin identified by SWRCB include municipal and domestic water supply, industrial service supply, and industrial process supply (CVRWQCB, 1998). Water quality objectives listed for groundwater include thresholds for bacteria, organic and inorganic chemical constituents, radioactivity, and taste and odor.

Water Quality

Water quality is one of the important factors affecting the attainment of beneficial uses in the Sacramento River Basin. Water quality influences habitat conditions and affects the distribution and abundance of biota in the Sacramento River and its tributaries. Contaminant issues affecting water quality and aquatic communities in the Sacramento Basin are acid mine drainage, agricultural runoff, mercury inputs, and municipal non-point source pollution (USGS, 2000). Water quality of the local surface waters is also greatly influenced by local land uses and urban runoff including storm water, irrigation water, and illicit discharges which carry contaminants to the receiving waters. Urban runoff can carry typical contaminants including pesticides, increased sediment, hydrocarbons and metals from road surfaces, nutrients, bacteria, and trash. Due to the dry summers, the initial autumn storm can carry high concentrations of the aforementioned contaminants to receiving waters and in other cases, storm water collection wells can produce direct discharges to groundwater (DWR, 1998).

Section 303(d) of the Clean Water Act has led to the generation of a list of water quality limited streams and other waterbodies. These waterbodies are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. The Sacramento River is impaired within the project area due to sources of diazinon from a paper mill in the upper reaches of the river near Red Bluff, and resource extraction sources of mercury from abandoned mines also occurring upstream. SWRCB is in the process of establishing Total Maximum Daily Loads (TMDLs) for impaired water bodies in the state of California that will limit input of pollutants to entire river systems. The CVRWQCB will have the responsibility of reducing pollutants within their region to meet the TMDLs. Two tributaries of the Sacramento River, Chicken Ranch and Strong Ranch Slough, are also impaired due to high levels of chlorpyrifos and diazinon. These

elevated levels are attributed to inputs from urban runoff and/or storm sewers and agricultural resources from aerial disposition (EPA, 2000).

CENTRAL VALLEY REGION – Tulare Lake Basin

Fresno County falls within the Tulare Lake Basin of the Central Valley Regional Water Quality Control District. This Region includes about 40% of the land in California and stretches from the Oregon border to the Kern County/Los Angeles County line. The Tulare Lake Basin comprises the drainage area of the San Joaquin Valley south of the San Joaquin River. In addition to the major rivers, the basin also contains numerous mountain streams. The westside streams derive from marine sediments and are highly mineralized, while eastside streams are fed by Sierra snowmelt and springs from granitic bedrock. Westside streams are intermittent, with sustained flows only after extended wet periods.

Surface Water Resources

The Kings, Kaweah, Tule, and Kern Rivers, which drain the west face of the Sierra Nevada Mountains, are of excellent quality and provide the bulk of the surface water supply native to the Basin. Buena Vista Lake and Tulare Lake, natural depressions on the valley floor, receive flood water from the major rivers during times of heavy runoff. During extremely heavy runoff flood flows in the Kings River reach the San Joaquin River as surface outflow through the Fresno Slough.

Groundwater Resources

The Central Valley Region is the State's largest, including the largest contiguous groundwater basin in California. The southern third of the Central Valley contains the Tulare Lake Basin, a closed hydrographic unit, except during extremely wet years. Major ground water basins underlie the valley floor, with scattered smaller basins in the foothill areas and mountain valleys. In many parts of the region, usable ground waters occur outside of these identified basins. There are water-bearing geologic units within ground water basins in the region that do not meet the definition of an aquifer.

Water Quality

Water quality is one of the important factors affecting the attainment of beneficial uses in the Tulare Lake Basin. Water quality influences habitat conditions and affects the distribution and abundance of biota in the Tulare Lake Basin. The primary contaminant issues affecting water quality and aquatic communities in the Tulare Lake Basin are agricultural runoff including pesticides, fertilizer and manure, dairies, and wastewater- treatment plants. Water quality of the local surface waters is also greatly influenced by local land uses and urban runoff including storm water, irrigation water, and illicit discharges which carry contaminants to the receiving waters. Surface water from the Sierra Nevada is of very high quality, but major changes in water quality occur when surface water enters the San Joaquin Valley. These changes are primarily due to the large amount of irrigated agriculture, which affects the quality of both surface and ground water

in the valley. Urban runoff can carry typical contaminants including pesticides, increased sediment, hydrocarbons and metals from road surfaces, nutrients, bacteria, and trash. Due to the dry summers, the initial autumn storm can carry high concentrations of the aforementioned contaminants to receiving waters and in other cases, storm water collection wells can produce direct discharges to groundwater (DWR, 1998). Pollutant sources that may exist along the proposed alignment include parking lots and streets, landscaped areas, and exposed earth at construction sites.

Section 303(d) of the Clean Water Act has led to the generation of a list of water quality limited streams and other waterbodies. These waterbodies are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. The San Joaquin River and many other waterbodies are impaired within the project area due to sources of diazinon, chlorpyrifos, boron, and selenium. The SWRCB is in the process of establishing TMDLs for impaired water bodies in the state of California that will limit input of pollutants to entire river systems. CVRWQCB will have the responsibility of reducing pollutants within their region to meet the TMDLs.

The paramount water quality problem in the Tulare Lake Basin is the accumulation of salts. Because of the closed nature of the Tulare Lake Basin, there is little subsurface outflow. Thus, salts accumulate within the Basin due to importation and evaporative use of the water. This problem is compounded by the overdraft of ground water for municipal, agricultural, and industrial purposes, and the use of water from deeper formations and outside the basin, which further concentrates salts within remaining ground water.

LOS ANGELES REGION

Los Angeles County falls within the Los Angeles Region Basin Plan. The region encompasses all coastal drainages flowing to the Pacific Ocean between Rincon Point and the eastern Los Angeles County line, as well as the drainages of five coastal islands.

Surface Water Resources

Surface water resources in Los Angeles County include creeks, rivers, and lakes. Reservoirs serving flood control and water storage functions exist throughout the region. Since the climate of southern California is predominantly arid, many of the natural rivers and creeks are intermittent or ephemeral, drying up in the summer or flowing only in response to precipitation. Annual rainfall amounts vary depending on elevation and proximity to the coast. The City of Los Angeles averages less than 16 inches per year. However, due to urban landscape watering, some water ways such as Ballona Creek and the Los Angeles River maintain a perennial flow.

The project area encompasses the watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers and Ballona Creek. The Los Angeles-San Gabriel Hydrologic Unit covers most of Los Angeles County and small areas of Ventura County. The rivers drain much of the San Gabriel Mountains to the Pacific Ocean. Ballona Creek drains central portions of the City of Los Angeles within the Santa Monica Bay Hydrologic Unit. The Dominguez Channel watershed drains a

small area within Torrance to the San Pedro Bay. The Santa Ana River Hydrologic Unit encompasses much of Orange County and the San Bernardino Mountains. Flood control measures such as concrete linings have reduced much of the rivers' natural riparian habitat. Numerous smaller creeks and flood control channels exist within these watersheds. However, the project area is highly urbanized with substantial storm sewer systems in place.

The County of Los Angeles has designated numerous Significant Ecological Areas (SEAs) within the County including Ballona Creek, Baldwin Hills, Rio Hondo Spreading Grounds, and Alamitos Bay. Other wetlands or estuaries within the project area include Marina Del Rey wetlands, Los Cerritos wetlands, Anaheim Bay, Newport Bay, and the Bolsa Chica wetlands.

Groundwater Resources

Groundwater basins in the Los Angeles area include the Santa Monica Basin, Hollywood Basin, West Coast Basin, Central Basin, and the Orange County Coastal Plain Basin. Each of these basins is comprised of multiple layers of water bearing formations. Some areas may have "perched water" or shallow groundwater less than 40 feet below ground surface. Much of the shallow groundwater that is designated as a potential drinking water source occurs in the alluvial plains within sandy deposits less than 200 feet below ground surface. Most municipalities in the region augment imported water received from the Metropolitan Water District with local groundwater supplies.

Water Quality

Water quality in the Los Angeles Region is significantly affected by stormwater runoff, although point source discharges from wastewater treatment plants and industrial facilities contribute somewhat to reduced quality. Several large wastewater treatment plants operate on the coast including the City of Los Angeles Bureau of Sanitation, the Sanitation Districts of Los Angeles County, and the Orange County Sanitation District. SWRCB has compiled a list of impaired water bodies pursuant to Section 303(d) of the Clean Water Act. The list includes the Santa Monica Bay as well as the Los Angeles, San Gabriel, and Santa Ana Rivers. The source for much of the pollutants identified in the Section 303(d) list is nonpoint source stormwater runoff. Pollutants range from trash and pathogens to petroleum hydrocarbons and pesticides. Eroded soil from construction sites can enter storm drains and increase sediment loads in local creeks and rivers. The SWRCB is in the process of establishing TMDLs for impaired water bodies in the state of California which will target point source and non-point source pollution. The Los Angeles RWQCB has the responsibility of reducing pollutants to meet the TMDLs in their region.

Shallow groundwater is susceptible to surface contamination from urban and agricultural land uses as well as sea water intrusion caused by overdrafting. Several groundwater basins in the region are adjudicated and managed by Groundwater Management Districts. The Districts, as mentioned above, oversee extraction operations and recharge efforts to maintain a sustainable, safe yield.

SANTA ANA REGION

The Santa Ana Region includes the upper and lower Santa Ana River watersheds, the San Jacinto River watershed, and several other small drainage areas. It is a group of connected inland basins and open coastal basins drained by surface streams flowing generally southwestward to the Pacific Ocean. The Santa Ana region covers parts of southwestern San Bernardino County, western Riverside County, and northwestern Orange County.

Surface Water Resources

Surface waters include streams, rivers, lakes, bays, the ocean, and wetlands in the region. The Santa Ana Region is a group of connected inland basins and open coastal basins drained by surface streams flowing generally southwestward to the Pacific Ocean. Surface waters are tributary to the Santa Ana River via Temescal Creek. The Santa Ana River, the region's main surface water body, transports more than 125 million gallons per day of reclaimed water from Riverside and San Bernardino Counties for recharge into the Orange County Groundwater Basin.

Groundwater Resources

Deep alluvial valley deposits made up large groundwater basins, both in the inland valleys and on the coastal plain, basins naturally full of fresh water. Water flows of the Santa Ana River are a significant source for groundwater recharge in the lower basin, which provides domestic supplies for more than two million people.

Water Quality

The quality of the Santa Ana River is a function of the quantity and quality of the storm flow (water resulting directly from rainfall, surface runoff) and base flow. Base flow is composed of wastewater discharges, rising groundwater, and nonpoint source discharges. Nonpoint discharges include runoff from agricultural and urban areas which is not related to storm flows. As inland cities have grown, wastewater flows have increased. There are approximately 2,000 NPDES permits in effect in the Santa Ana region which regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. Although the river is effluent dominated, its water quality has improved steadily. One of the region’s major problems has been salt balance. Salinity increases with each use of a given volume of water. The increase depends on the use, whether in the home, in industry, or for agriculture. The loss of drinking water supply wells due to organic compound contamination is a serious problem in several areas of the region, most notably Bunker Hill, Chino, and Santa Ana Forebay Groundwater Basins. In addition, there are approximately 2,000 known cases of leaking underground storage tanks in the region of which 35% have confirmed groundwater contamination.

COLORADO RIVER BASIN REGION

The Colorado River Basin Region covers all of Imperial County and portions of San Bernardino, Riverside, and San Diego Counties.

Surface Water Resources

Surface water resources in the region of the Colorado River Basin include creeks, rivers, lakes, and the Pacific Ocean. Many of the drainage basins in the region consist of coastal, intermittent waterways, responding exclusively to local precipitation. These drainages are typically dry throughout the summer months. However, even with the low annual precipitation rates, some urban streams within the region have perennial flow due to urban runoff. Several 100-year flood zones exist within the region, generally along the banks of major streams, washes, and rivers. Since the watersheds in the region are relatively short, extending to approximately 40 miles inland, flooding in the area is generally caused by local heavy precipitation. Due to the typically well-drained soils exhibiting high runoff rates and the potential for high rainfall intensities, winter storms can cause flash flooding throughout the region. Several surface reservoirs serve flood control functions in the region including Miramar, Murray, and Sweetwater Reservoirs. Upstream on the San Diego River, reservoirs such as the San Vicente and El Capitan Reservoirs provide potable water storage in addition to flood control functions.

Groundwater Resources

Generally speaking, groundwater basins exist in this region only within major river corridors. The groundwater in these areas is recharged through the river channels, which are typically shallow and limited in size. The project area encompasses the Mission San Diego groundwater basin, which underlies the San Diego River. Water extracted from this basin historically provided the bulk of San Diego's local municipal groundwater supplies. Local groundwater resources may contain high concentrations of dissolved minerals and nitrates as a result of overlying land uses. Municipal use of much of the local water is limited without pre-treatment.

Water Quality

Water quality in the Colorado River Basin Region is significantly affected by storm water run-off, although point source discharges from wastewater treatment plants and industrial facilities contribute somewhat to reduced quality. SWRCB has compiled a list of impaired water bodies pursuant to Section 303(d) of the Clean Water Act. The source for much of the pollutants identified in the Section 303(d) list is non-point source stormwater runoff. Pollutants range from trash and pathogens to petroleum hydrocarbons and pesticides. Eroded soil from construction sites can enter storm drains and increase sediment loads in local creeks and rivers. The SWRCB is in the process of establishing TMDLs for impaired water bodies in the state of California to limit input of pollutants to entire river systems. Local RWQCBs will have the responsibility of reducing pollutants on a regional basis to meet the TMDLs.

4.8.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO HYDROLOGY AND WATER QUALITY

WATER QUALITY REGULATION

Regulatory authorities exist on both the state and federal levels for control of water quality in California. The EPA is the federal agency, governed by the Clean Water Act, responsible for water quality management. All of California falls in EPA Region IX, whose office is located in San Francisco and delegates authority for water quality permitting to SWRCB.

The SWRCB, located in Sacramento, is the agency with jurisdiction over water quality issues in the State of California. The SWRCB is governed by the Porter-Cologne Water Quality Act (Division 7 of the California Water Code), which establishes the legal framework for water quality control activities by the SWRCB. Much of the implementation of the SWRCB's responsibilities is delegated to nine RWQCBs.

REGIONAL WATER QUALITY CONTROL BOARDS

The state of California is divided in nine regional water quality control boards. Each of these is responsible for the protection of the beneficial uses of the surface and ground water in the assigned area. Each RWQCB has adopted a *Water Quality Control Plan* (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses described in the Basin Plans will be identified for any drainages that would be crossed by future project alignments, once known. Water quality objectives defined in the Basin Plans serve as guidelines for all point source and non-point source discharges.

NPDES Permit

The RWQCBs administer the National Pollution Discharge Elimination System (NPDES) stormwater permitting program throughout California. Construction activities of five acres or more (Phase II requirements for permitting areas between one and five acres will not be fully implemented until early 2003) are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit). The project applicant must submit an NOI to the SWRCB to be covered by the General Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP. The SWPPP must be prepared before construction begins. The plan would include specifications for BMPs that would be implemented during project construction to control potential discharge of pollutants from the construction area. Additionally, the plan would describe measures to prevent pollutants in runoff after construction is complete and reference a plan for inspection and maintenance of the project facilities. Implementation of the plan starts with the commencement of construction and continues though the completion of the project. Upon completion, the applicant must submit a Notice of Termination to the SWRCB.

Clean Water Act, Section 401 Certification

If water ways or wetlands were affected by the project, a Section 401 water quality certification (or waiver) from the RWQCB would be required under the Clean Water Act and would be obtained by meeting the terms and conditions in Section 404 Nationwide Permit No. 12, as appropriate, issued by the Corps. Nationwide Permit No. 12 authorizes discharge of material for backfill or bedding for utility lines. Under Nationwide Permit No. 12 conditions, an applicant must demonstrate that any unavoidable in-channel work would occur within the state agency's preferred work windows and that all practicable erosion control measures would be implemented.

4.8.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines (revised October 26, 1998) states that a project would normally result in a significant impact on hydrology or water quality of the area 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 (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- 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 substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- otherwise substantially degrade water quality;
- place housing within a 100-year flood hazard zone 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 that would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or

- cause inundation due to seiche, tsunami, or mudflow.

IMPACT MECHANISMS

Potential construction-related impact mechanisms for water quality include the following:

- Installation of fiber optic cable facilities could expose soils to stormwater runoff causing erosion and subsequent sedimentation to local and regional drainages.

- Installation of fiber optic cable facilities and associated disturbance of road embankment or channel bed and bank could induce or increase erosion within drainages. Disturbance to the geomorphic characteristics and stability of a channel bed and banks may initiate erosion in natural channels. Disturbing roadway ditches, which function as extensions of stream networks, also could result in sediment deposition into local drainages.

- Removal of riparian vegetation can weaken streambank structure and increase its susceptibility to erosion. Changes to soil stability factors can increase erosion.

- Hazardous materials associated with subsequent activities will be limited to those substances associated with construction equipment, such as gasoline and diesel fuels, engine oil, and hydraulic fluids. An accidental spill of these substances could contaminate drainages, soils, wetlands, and other environmentally sensitive areas.

- Use of guided boring equipment could result in an accidental drilling fluids spill into, or adjacent to, stream channels. Drilling fluids are composed of non-toxic drill lubricants (typically natural clay such as bentonite) and water, which are used to lubricate the bore hole and also to flush cuttings from the bore hole.

- Construction of regenerator/OP-AMP stations within a 100-year hazard area impeding or redirecting flood flows.

Impact HYD-1: Installation of fiber optic cable facilities could cause erosion and transport of sediments to local water resources during construction activities. (Potentially Significant)

There would be potential for surface runoff to transport upland construction spoils into streams, which could result in temporary increases in turbidity and sedimentation in watercourses downstream of the project. Excessive sediment in the water column (increased turbidity) can reduce channel capacity, alter drainage characteristics, affect aquatic organisms through reduced water quality, and interfere with fish feeding behavior and with photosynthesis in aquatic flora.

Sempra Communications would use construction best management practices to minimize sediment transport to streams from upland. Spoils generated during construction would be stored on the project site for a short time (generally less than one day). To minimize the exposure of sediments to runoff, Sempra Communications would make best efforts to ensure that all trenches were backfilled or properly covered at the end of each workday. Where backfilling the trench is

not feasible, proper erosion control features would be established to eliminate or minimize exposure of sediments to runoff.

Construction is not expected to require work in drainages supporting sensitive resources (i.e., streams that support sensitive fish, amphibians, or other riparian and aquatic species or waters that are impaired by sediments). At stream crossings that are flowing at the time of construction Sempra Communications would attach the conduit to an existing bridge, bore under the stream, or construct an aerial crossing. In the event that boring and aerial crossings are not feasible, Sempra Communications may trench through a stream as the last alternative. As much as possible, Sempra Communications would only trench across drainages when the stream is dry, when streams are flowing during construction the mitigation below would be required.

Mitigation Measure HYD-1a: The following installation of temporary erosion control devices and water diversion techniques shall be implemented during construction to minimize erosion and sedimentation in streams that are flowing during construction. (construction related impact, particularly open trenching, plowing and directional boring through streams)

- Temporary dewatering of creeks may be required during installation of fiber optic facilities when trenching during dry conditions is not feasible. During construction within the waterway, the contractor will divert the entire streamflow around the work area in the waterway to minimize the amount of silt runoff entering the creek. Appropriate measures will be taken to maintain near normal downstream flows and to minimize flooding by using cofferdams and a temporary culvert. Diversion of streamflow will be accomplished by utilizing a barrier and temporary culvert capable of permitting upstream and downstream aquatic life movement and maintaining existing stream flow rates.

- Installation of temporary erosion control devices will be an integral part of construction and will include the use of rolling dips and waterbars, silt fencing, straw bales, riprap, detention basin, and revegetation as appropriate. Erosion control devices will be installed concurrently with construction. Erosion control measures will include protection of receiving waters from sources of sedimentation, principally, spoils and bare ground. These measures and all other permit requirements, will be included in contract specifications and will be implemented by the contractor or subcontractor.

- When the stream channel is altered during construction, its low flow channel shall be returned as nearly as possible to its natural state without creating conditions for future bank erosion, or creating a flat wide channel or sluice-like area. The gradient of the streambed shall be as nearly as possible the same gradient as existed prior to disturbance.

- Locate spoil sites such that they do not drain directly into the drainages. If a spoil site drainage into the drainage channel, catch basins shall be constructed to intercept sediment before it reaches the channel. Spoil sites shall be flattened to reduce the potential for erosion.

Mitigation Measure HYD-1b: Implement **Mitigation Measure BIO-11a.**

Any activities in stream and wetlands would be conducted in accordance with the appropriate state and federal permits and in consultation with the relevant agencies.

Significance after Mitigation: Less than Significant

Impact HYD-2: Possible long-term erosion from decreased channel stability. (Potentially Significant).

Removing riparian vegetation along drainages or disturbing the bed or bank of channels could weaken streambank structure and increase susceptibility to erosion. Disturbing the geomorphic characteristics and stability of the channel bed and banks may initiate chronic erosion in natural channels.

A significant impact could occur if large amounts of riparian vegetation were removed, if the channel bed and banks on several crossings of one channel or within one watershed were disturbed, or if sensitive crossing sites that have been disturbed mechanically were further disturbed by high-flow events before they are stabilized.

Mitigation Measure HYD-2a: Implement **Mitigation Measures BIO-2a**, **BIO-2b**, and **BIO-2c**.

Wherever feasible, avoid riparian and wetland habitats that support special-status aquatic species by establishing, maintaining, and observing exclusion zones. If avoidance of riparian and wetland habitats is possible through directional bore or jack-and-bore methods, implement Mitigation Measures BIO-2a through BIO-2c in the Biological Resources section of this chapter.

Significance after Mitigation: Less than Significant

Impact HYD-3: Possible water quality degradation from accidental spills of construction materials and equipment fluids. (Potentially Significant)

Hazardous materials associated with subsequent activities would be limited to substances associated with construction equipment, such as gasoline and diesel fuels, engine oil, and hydraulic fluids. Accidental spills of these substances could contaminate drainages, soils, wetlands, and other environmentally sensitive areas. Current spill prevention practices indicate a low probability that construction material will spill.

Mitigation Measure HYD-3a: Spill prevention and mitigation practices summarized in the following text will be enacted depending on the location and severity of the spill.

Prior to construction, crews will have containment and cleanup equipment (e.g., absorbent pads; mats; socks; pillows; granules; drip pans; and shovels) available at the staging areas and

construction sites for use, as needed. Staging areas, where refueling, storage, and maintenance of equipment would take place, will not be located within 100 feet of drainages or any other body of water, or wetlands or riparian areas, to reduce the potential of contamination by spills.

During construction activities, equipment will be maintained and kept in good operating conditions to reduce the likelihood of line breaks and leakage. Fluids drained from machinery during services at staging areas will be collected in leak-proof containers and disposed of at appropriate disposal or recycling facilities. No refueling or servicing will be done without absorbent material (e.g., absorbent pads, mats, socks, pillows, and granules) or drip pans underneath to contain spilled material. If these activities result in an accumulation of materials on the soil, the soil will be removed and properly disposed of as hazardous waste.

If a spill is detected, simultaneous to implementing the containment measures, construction crews will contact the appropriate resource agency personnel. Spill areas will be restored to pre-spill conditions, as practicable, and spill documentation and reporting will be carried out.

Significance after Mitigation: Less than Significant

Impact HYD-4: Possible water quality degradation and siltation from accidental seepage or spillage of drilling fluids into streams. (Potentially Significant)

As mitigation built into the construction approach, one of the construction methods proposed by Sempra Communications to cross-flowing streams would be to install facilities under streams via directional bore. During the boring operation, drilling fluid is used to lubricate the bore and help remove cuttings from the bore-hole (see Chapter 3, Project Description for further details on directional boring). Although unlikely, the drilling fluid mixture could seep to the surface within a stream channel. Seepage which could happen if bores encounter fractures in the underlying rock, and drilling fluid pressures are great enough to allow the material to surface. Additionally, drilling fluid could be spilled from the fluid circulation system and enter local drainages.

Mitigation Measure HYD-4a: The following mitigation measure will be implemented to minimize the potential for drilling fluid seepage to streams and to ensure containment of drilling fluids within the drilling circulation system.

Prior to directional boring activities near streams, containment and cleanup equipment (e.g., certified weed-free bales, sedimentation fencing, and portable pumps) will be present for use at the staging areas and construction sites, as needed. Portable pumps will be kept on site to control seepage to the surface beyond the straw bales and to prevent the mixture from entering streams or wetlands. At high-risk boring location, damming and flume materials will be pre-staged.

During directional boring activities near streams, construction crews will monitor bentonite flow and returns so that fluid loss can be identified before the material surfaces in the stream channel. Surveillance of stream flow and wetland areas will ensure prompt detection of any bentonite

release, or the release of other construction materials. Weed-free straw bales or sedimentation fences will be installed between the bore site and any flowing stream or wetland. These bales or fences will contain any of the bentonite-water mixture if it seeps from the boring site, and will prevent the mixture from entering the stream or wetland.

If a spill is detected in a flowing channel, wetland, or other sensitive resource area, drilling will cease immediately and spill prevention and control measures will be immediately enacted to safely contain and remove the spilled materials. Concurrent with implementation of the containment measures, construction crews will contact the appropriate resource agency personnel, as indicated on local, state or federal permits. If the mixture oozes to the surface in the stream or wetland channel, a pump will be used to pump it back to the drill site. If a release occurs at a high-risk boring location, the stream flow will be immediately dammed and flumed, and the bentonite will be contained and removed. Spill areas will be restored to pre-spill conditions, as practicable, and spill documentation and reporting will be carried out.

Although these measures greatly reduce the chance that drilling fluids would seep into streams, they cannot completely eliminate the risk of accidental spills which under the worst case scenario could still be potentially significant.

Significance after Mitigation: Potentially Significant

Impact HYD-5: Excavation during project construction could encounter groundwater and require dewatering. Discharge of dewatered water could adversely affect surface water quality. (Less than Significant)

Subsequent activities could involve trenching and excavation in varied terrain. Depths of excavation are typically four feet with variable depths dependent upon cover and land use. Groundwater levels vary considerably throughout the project area and depths of excavation can also vary. Potentially, in some locations excavation would encounter saturated soil conditions and required dewatering. Dewatering results in the temporary draw-down of the localized water table. Extracted groundwater may be of poor quality and, if discharged to surface waters, could degrade water quality. Approved discharge locations or disposal methods have not been identified for the project.

Groundwater would be discharged or collected and disposed off-site, in accordance with all applicable laws and regulations. If dewatered water were discharged to adjacent surface waterways, Sempra Communications would obtain an NPDES permit from the appropriate RWQCB for surface discharge, as required under Section 402 of the Clean Water Act. Receiving water quality would be maintained through appropriate treatment measures identified in the permit. These may include utilization of settling ponds or screens to reduce suspended sediment loads, or if necessary due to contaminated groundwater, use of on-site treatment systems for contaminant removal prior to discharge.

Mitigation Measure: No mitigation is required.

Impact HYD-6: Regeneration and OP-AMP stations may potentially be sited within a 100-year flood zone. (Less than Significant)

The Federal Emergency Management Administration's (FEMA) National Flood Insurance Program (FEMA, 1988) has designated 100-year flood zones nationwide. The boundaries of the 100-year flood zone are determined from a combination of precipitation data and land use characteristics and are used as a design criterion to ensure a factor of safety from flood hazard. During any given year, there is a one percent chance a 100-year flood would occur. This would be a less than significant impact because Sempra Communications' protocol specifically requires that no construction be sited in a 100-year flood zone.

Mitigation Measure: No mitigation is required.

REFERENCES – Hydrology and Water Quality

California Department of Water Resources, *The California Water Plan Update*, Bulletin 160-98, 1998

Central Valley Regional Water Quality Control Board, The 1998 303(d) List, by Waterbody. http://www.swrcb.ca.gov/rwqcb5/programs/tmdl/303d_wb.pdf.

Control Plan for the San Diego Basin (9). September 8, 1994.

Dubrovsky, Neil M., Charles R. Kratzer, Larry R. Brown, JoAnn M. Gronberg, and Karen R. Burow, *Water Quality in the San Joaquin-Tulare Basins, California, 1992-95*, U.S. Geological Survey Circular 1159, A contribution of the National Water-Quality Assessment (NAWQA) Program. http://water.usgs.gov/pubs/circ/circ1159.

Environmental Protection Agency (EPA), Office of Water, *1998 List of California Impaired Waters*, presented at the EPA Total Maximum Daily Load website for the California TMDL Program. Accessed January 4, 2000.

Los Angeles Regional Water Quality Control Board, *Water Quality Control Plan, Los Angeles Region*, 1995

Regional Water Quality Control Board – San Diego Region. *Water Quality*

Regional Water Quality Control Board, Central Valley Region (CVRWQCB) Water Quality Control Plan (Basin Plan), Central Valley Region, Sacramento River and San Joaquin River Basins. Fourth Edition, 1998.

Regional Water Quality Control Board, San Francisco Region (RWQCB), *San Francisco Bay Basin Water Quality Control Plan (Basin Plan)*, June 1995.

San Francisco Estuary Project (SFEP), *San Francisco Bay Status and Trends Report*, 1991.

Santa Ana Regional Water Quality Control Board, *Water Quality Control Plan, Santa Ana Region*, 1994

Santa Clara Valley Water District (SCVWD), *Standards for the Construction and Destruction of Wells and other Deep Excavations in Santa Clara County*. Revised June 1989.

United States Geological Systems (USGS), Sacramento River Basin NAWQA: Environmental Setting. Information available through USGS Water Center's website. Access July 5, 2000. http://water.wr.usgs.gov/sac_nawqa/envirose.html

4.9 LAND USE AND PLANNING

Land use planning in California is primarily the responsibility of local government. Each city and county is required by the State to adopt a General Plan and to establish goals, policies, and implementation measures for long-term development, protection from environmental hazards, neighborhood preservation, conservation of identified natural resources, and sound planning for urban development.

The principal means of implementing the goals and policies presented in the General Plan of a city or county is its zoning ordinance, which identifies use zones in the jurisdiction, the land uses permitted on each parcel, and the standards for each permitted use according to zone. The zoning ordinance is required by state law to be consistent with the General Plan.

In addition to local city and county governments, the regulation of land use and development within the project area is also provided by other levels of government at the regional, state, and federal levels. An overview of land use regulation in the identified project area is provided below. Due to the extensive geographic scope of the Project, this section provides a general description of land use within each of the cities and counties identified in **Table 3-1**. Appendix H provides the municipal status and information regarding the land policy document for each city and/or town throughout the project area.

4.9.1 SETTING

Sacramento County

Sacramento County encompasses approximately 994 square miles in the middle of the 400-mile long Central Valley, which is California's prime agricultural region. Sacramento County abuts Contra Costa and San Joaquin Counties to the south, Amador and El Dorado Counties to the east, Placer and Sutter Counties to the north, and Yolo and Solano Counties to the west. Sacramento County extends from the low delta lands between the Sacramento and San Joaquin rivers north to about ten miles beyond the State Capitol and east to the foothills of the Sierra Nevada. The southernmost portion of Sacramento County has direct access to the San Francisco Bay. As depicted in **Figure 3-1**, the project area includes the northern portion of the County between the Interstate 80 and Highway 50 corridors, and urbanized areas along the Interstate 5 corridor within the northern portion of the County.

The County's largest city, the City of Sacramento, is the government seat for the State of California and also serves as the county seat. The County is the major component of the Sacramento Metropolitan Statistical Area which includes Sacramento, El Dorado, and Placer Counties. The Sacramento County General Plan (1997) serves as the principle land use planning document for unincorporated areas within the County (Sacramento County, 1997).

Marin County

Marin County is situated within the northern portion of the Bay Area along the Marin Peninsula north of the San Francisco Bay, west of San Pablo Bay, and east of the Pacific Ocean. As illustrated in **Figure 3-2**, the project area is restricted to the developed areas located along a series of bayfront towns and incorporated cities centered on numerous inlets and peninsulas within the southeastern portion of the county. Areas to the west of the project area include a series of large federal land holdings equating to approximately 80,233 acres (Marin County, 1994). These land holdings comprise the Golden Gate National Recreation Area, Point Reyes National Seashore, and the old growth redwoods located in Muir Woods National Monument (Marin County, 1994).

The Marin Countywide Plan serves as the principle-planning document for Marin County and covers 606 square miles of land and water area, encompasses numerous governmental agencies, represents eleven incorporated cities and county general purpose governmental entities, and a number of single-purpose service districts. There are 15 Community Plan areas within the County (Marin County, 1994). The City-Centered Corridor is designated to contain more urban, densely populated development than the Inland Rural Corridor and Coastal Recreation Corridor areas of the County. The County Planning Department maintains statistical summaries for each of the planning areas to provide an indication of how commercial and industrial development potential is distributed throughout the county.

San Francisco County

San Francisco County is situated at the northern tip of the San Mateo Peninsula and is bounded by the Pacific Ocean to the west, San Francisco Bay to the north and east, and San Mateo County to the south. As shown on **Figure 3-3**, the project area encompasses the entire City of San Francisco (contiguous with the County) with the exception of the Presidio, Lincoln Park, and Harding Park. In general, the project area includes the large financial and commercial districts in the central, northeastern, and eastern portions of the City. The project area also includes the eastern shoreline where numerous large-scale ports and private marinas are located. The large residential communities of western San Francisco and Golden Gate Park Area are also included.

The San Francisco County and City Master Plan serves as the principle planning document for the City / County (San Francisco County and City, 1995). The City is divided into 13 zoning regions (maps), with the exception of Golden Gate Park and the Presidio. The Planning Department provides these zoning maps and a list of permitted uses for each zoning district online.

Contra Costa County

Contra Costa County is located south of the Carquinez Straits and Solano County, east of San Pablo and San Francisco Bay, north of Alameda County, and west of Sacramento and San Joaquin County. The County covers a total of 805 square miles, of which approximately 732 square miles (468,500 acres) are land, with the remainder consisting of water features (Contra Costa County, 1996). In general, the western and central portions of Contra Costa consist

of mainly urban and suburban development, while the extreme eastern corner of the County more closely resembles the predominantly agricultural communities of the San Joaquin Valley.

The County encompasses three distinct planning areas, which are typically referred to as West County, Central County, and East County. The project area includes each of the three planning areas as depicted in **Figure 3-4**. The Central County encompasses sections of the North Central County, Lamorinda, and the San Ramon Valley. The East County is composed of the Pittsburg-Antioch area and other unincorporated areas within the East County. The West County geographic area includes the urbanized shoreline of the San Francisco and San Pablo Bays, which is separated from the rest of the County by the Briones Hills and the open space watershed lands owned by the East Bay Municipal Utility District.

Central County is the largest of the three geographic areas and includes ten of the eighteen cities in Contra Costa County and over half of the total population. This portion of the County is composed of mostly low-density residential communities that have developed in the flat valleys between the East Bay Hills and the Diablo Range to the east, extending north and south of Mt. Diablo. The Northern section of the Central County includes of the cities and unincorporated communities along the northern Interstate 680 corridor.

The Contra Costa County General Plan (1996) serves as the principal land use document for unincorporated areas of the County.

Alameda County

Alameda County is situated along the eastern shores and foothills of San Francisco Bay and covers over 800 square miles (Alameda County, 1994). The County is bordered by Contra Costa County to the north, San Francisco Bay to the west, San Joaquin County to the east, and Santa Clara County to the south. As illustrated in **Figure 3-5**, the project area includes the western and central portions of the County, which contain the most dense areas of urban development. The County is divided into four statistical planning units. The Central Metropolitan Planning Unit (CMPU) refers to the North County area between the San Francisco Bay and the Contra Costa border. It is urban in character and is home to nearly half of the County's population. Most of the populated unincorporated areas are located in the Eden Planning Unit (EPU). Suburban in character, the EPU is the central portion of the County between the East Bay hills and the San Francisco Bay.

The Washington Planning Unit (WPU), commonly referred to as the Tri-cities, encompasses the south county between the San Francisco Bay and the East Bay hills. The East County Planning Unit (ECPU), formerly the Livermore-Amador Valley Planning Unit encompasses the entire area east of the East Bay hills bounded by Contra Costa, San Joaquin, Santa Clara, and Stanislaus Counties. The East County is the largest in terms of land area and includes much of the hilly terrain of the Diablo Range.

San Mateo County

San Mateo County is located south of San Francisco, east of the Pacific Ocean, west of the San Francisco Bay, and north of Santa Clara County. The County covers a total of 553 square miles (105 are in water), of which approximately 25 percent (73,455 acres) are urbanized. (San Mateo County General Statistics, 2002). San Mateo County is characterized by a complex topographical landscape with numerous incorporated cities centered on numerous inlets, peninsulas, and valleys within the eastern and northeastern portions of the county. The Santa Cruz Mountain Range comprises the majority of the central and southern portions of the County and is largely undeveloped. The pacific coastline in the western portion the County is characterized by a rugged landscape with the Santa Cruz Mountains descending into the Pacific Ocean. Most of the developed areas within this region (e.g. Half Moon Bay and Pacific) are located along coastal terraces and bluffs.

The project area includes the urbanized areas along Highway 101 and the northern portion of the State Route 1 corridors, respectively. A small inland portion along Highway 280 in the southern portion of the County is also included (refer to **Figure 3-6**). Much of the developed areas along the pacific are characterized by residential land uses with associated commercial facilities. The northern and eastern portions of the project area are characterized by residential development in the foothills and more commercial, office, and industrial development concentrated along the highway corridors and flatter areas along the shoreline of San Francisco Bay. The San Mateo County General Plan (1986) serves as the principal land use document for unincorporated areas of the County.

Santa Clara County

Santa Clara County encompasses 1,300 square miles and is located at the southern end of San Francisco Bay. The major topographical features of the county include the Santa Clara Valley, the Diablo Range to the east, and Santa Cruz Mountains to the west. The Santa Clara Valley is surrounded by rolling hills and runs the entire length of the county from north to south. The Diablo Range covers the entire eastern half of the county. The Baylands lie in the northwestern part of the county, adjacent to the waters of the southern San Francisco Bay. They consist mostly of vast salt evaporation ponds and remnant areas of salt marsh and wetlands (Association of Bay Area Governments, Projections - 98, December 1997).

The North Valley is extensively urbanized, housing approximately 90 percent of the county's residents and would encompass the majority of the project area within the County (refer to **Figure 3-7**). Thirteen of the county's fifteen cities are located in the North Valley, while the remaining two cities, Gilroy and Morgan Hill, are located in the South Valley (Refer to **Table 3-1** for a list of cities). The South Valley differs in that it remains predominantly rural, with the exception of Gilroy, Morgan Hill, and the small-unincorporated community of San Martin. As depicted in **Figure 3-7**, a majority of the southern portion of the County would be excluded from the project area with the exception of these three previously mentioned urban centers.

Santa Clara County contains 15 cities and roughly 30 special districts. Given the cities' and County's joint urban development policies, the cities are collectively responsible for accommodating and managing urban development, as well as for the provision of most urban services. Lands outside city-designated urban service areas are under County jurisdiction and are in most cases maintained in rural uses. The Santa Clara County General Plan (1994) serves as the principle land use planning document for these areas (Santa Clara County, 1994).

Santa Cruz County

Santa Cruz County is the second smallest county in California encompassing a total of 441 square miles of land located between the San Francisco Bay Area and Monterey Peninsula. The topography of the County is varied in character, containing such features as the forested Santa Cruz Mountains in the north and northwest, the mid-County coastal terraces where are large portion of the existing urban development is located, and the alluvial south County which is predominately in agricultural use. Urban portions of the County are confined to Valleys within the Coastal Range and the coastline of the Pacific Ocean. In general the project area includes the central coastline of the County with the exception of Watsonville, which is located along the southern County line (see **Figure 3-8**).

The Santa Cruz County General Plan and Local Coastal Program (1994) serves as the principle land use planning document for the County (Santa Cruz County, 1994).

San Bernardino County

San Bernardino County is the largest county, in terms of land area, within the state consisting of 20,160 square miles. Los Angeles, Orange, and Kern Counties bound the County to the west, Inyo County to the north, the state of Arizona to the east, and Riverside County to the south. About 90% of the County consists of a desert landscape with the remainder consisting of the San Bernardino Valley and the San Bernardino Mountains. The project area includes only the southwestern panhandle and southern portion of the County, as this is where the majority of the residential development is located (refer to **Figure 3-9**). Single-family dwellings are the dominate land use from the I-10 Corridor north to the foothills of the San Bernardino Mountains.

Commercial development in San Bernardino County includes major shopping centers and general commercial uses along I-10 and I-15. Industrial uses in San Bernardino County are concentrated in cities along the I-10 corridor. In large part, these uses are located in proximity to this interstate and the Southern Pacific Railroad mainline, which is adjacent and parallel to I-10. Cities with substantial concentrations of industrial development include Ontario, Rancho Cucamonga, Fontana, Colton, and San Bernardino.

The San Bernardino County General Plan serves as the principle land use planning document for the unincorporated areas within the County (San Bernardino County, 1999).

Fresno County

Fresno County encompasses roughly 6,000 square miles, making it California's sixth largest county. Fresno County abuts Merced and Madera Counties to the north, San Benito and Monterey Counties to the west, Kings and Tulare Counties to the south and Inyo County to the east. The County is largely dominated by agricultural and resource conservation (includes national forests and parks and timber reserves) land uses occupying over 90 percent of county land. The project area is confined to the urbanized center of the County and includes the incorporated cities of Fresno and Clovis (refer to **Figure 3-10**).

The Land Use Diagram for the Northeast Fresno-Clovis Metropolitan Area provides a general spatial orientation of the land use designations for the project area (Fresno, 1995). Since the project area only includes the cities of Fresno and Clovis, the General Plans for these two cities are applicable rather than the County General Plan.

Los Angeles County

Los Angeles County encompasses approximately 4,083 square miles and is bounded by Ventura County to the west, Kern County on the north, San Bernardino County to the east, Orange County to the southeast, and the Pacific Ocean on the west and southwest. The County also includes the Catalina and San Clemente Islands. The county contains 87 incorporated cities, which together form an area approximately 1,100 square miles. The county includes several significant topographical features, including the east/west trending mountain ranges of the Santa Monica, San Bernardino, San Gabriel, and Santa Anna Mountains.

Low-density residential land uses constitute the principal (i.e., 70 percent) residential land use type found in the County and are primarily concentrated within the southern portion of Los Angeles County. As illustrated in **Figure 3-11**, the project area includes the southern portion of the County along the shorelines of Santa Monica Bay and San Pedro Bay. Principal office/business complex locales within the County include Santa Clarita, San Fernando Valley, Universal City, Glendale, Pasadena, El Segundo, Torrance, Diamond Bar, Los Angeles Central Business District, and the Century City area of Los Angeles.

Principal industrial activities within the County include manufacturing and aerospace development. Aerospace and defense sector firms are located throughout Los Angeles County, notably in the South Bay between El Segundo and Long Beach. A number of large industrial corridors are contained within the County and are principally located adjacent to or along major transportation corridors. Principal industrial corridors contained within the County are located within the San Fernando Valley, South Bay-Harbor Cities Corridor, Ports of Los Angeles and Long Beach, Alameda Corridor, Santa Fe Springs-Norwalk-La Mirada Corridor, and La Puente-Industry-Rowland Heights-Diamond Bar Corridor.

The Los Angeles County General Plan (1994) serves as the principle land use planning document for unincorporated areas of the County (Los Angeles County, 1994).

Riverside County

Riverside County is the fourth largest county in the state, stretching nearly 200 miles across and comprising over 7,200 square miles of fertile river valleys, lowland deserts, large mountain ranges, foothills and rolling plains. Riverside County abuts Orange and Los Angeles County to the west, San Bernardino County to the north, San Diego County to the south, and the Colorado River to the east. The project area includes only the urbanized centers in the northwestern portion of the County and east of the Santa Ana Mountain Range.

A majority of the residential development in Riverside County is concentrated in the western portion of the County to the north of the Santa Ana River. These cities are characterized by low-density residential with some high density residential. Retail commercial uses are located in downtown Riverside and along Highway 91 in Corona and the City of Riverside. The City of Riverside is the largest commercial center in the County. Industrial uses are less prevalent in Riverside County than in other urban counties in the South Coast Association of Government (SCAG) region. Major industrial uses in the County are found predominately in the in the Corona area west of I-15. Industrial uses are also found in the far northwest portion of the County in the largely unincorporated Agua Mansa area.

The Riverside County Comprehensive General Plan serves as the principle land use planning document for unincorporated portions of the County (Riverside County, 1992).

Orange County

Orange County is located south of Los Angeles County, west of San Bernardino County, north of Riverside County and east of the Pacific Ocean. The county includes 798 square miles with the majority of new development occurring in the northern area of the county such as Anaheim, Fullerton, Orange, Westminster, and Fountain Valley (Center for Demographic Research, 2001). Approximately two-thirds (64.5 percent) of the unincorporated territory in the County resides within the Cleveland National Forest. The project area includes the western and southern portions of the County, as illustrated in **Figure 3-13**.

Orange County is the smallest county in southern California and the most extensively developed county within the region. According to SCAG, low-density residential development dominates the landscape from the north county cities to the beach communities of Huntington Beach, Newport Beach, Laguna Beach, Dana Point, and San Clemente. Major office centers are located in the cities of Irvine, Newport Beach, Orange, and Santa Ana, the seat of county government. Other major commercial concentrations are found in Anaheim, Buena Park and along major arterials in the cities in the northwest portion of the county. Commercial uses in the southern part of the county are adjacent to the I-5 freeway and include retail-shopping centers, highway oriented commercial uses, and some office development.

A high concentration of advanced technology, aerospace and defense sector businesses are located in the northern portion of the County. Major industrial concentrations are found in the

cities of Fullerton, Anaheim, and Santa Ana. Smaller concentrations of industrial uses are dispersed in communities south of the I-5/I-405 interchange.

The Land Use Element of the Orange County General Plan serves as the principal land use planning document for the County (Orange County, 1995).

San Diego County

San Diego County covers approximately 4,255 square miles, stretching 65 miles from north to south and 86 miles from east to west, and has the second largest population in the state with more than 2.6 million people. San Diego County abuts US / Mexico border to the south, Imperial County to the east, Riverside and Orange County to the north, and the Pacific Ocean to the west. As illustrated in **Figure 3-14**, project area includes only the western portion of the County and includes numerous incorporated coastal and inland cities, large tracts of unincorporated County land, and the entire San Diego County coastline. The project area encompasses the Interstate 5, 15, and 8 corridors, and is concentrated around the San Diego Metropolitan Area. The area includes 15 incorporated cities and portions of the Otay, Pendleton-Deluz, Fallbrook, Lakeside, Crest / Denesa, Spring Valley, and Valle de Oro Community Plan Areas (San Diego County, 1979).

Residential land uses dominate the northern incorporated cities along the coast with hillside developments located further inland. In general, large office and commercial uses are concentrated along major arterial roadways and freeway corridors within the northern cities and in the Downtown area of San Diego. Large industrial centers are located within the City of San Diego near the San Diego International Airport, downtown, and San Diego harbor. Other large industrial / research centers are located in Oceanside, El Cajon, and National City. Government owned land accounts for 54% or approximately 1.45 million acres of the land in San Diego County. Of that 1.45 million acres, 51% is Federally owned, 40% is state owned, and 9% is owned by various local public agencies (San Diego, 1979). The largest concentrations of these lands include Camp Pendleton, the Cleveland National Forest, Anza Borrego Desert State Park, and several large Wilderness Areas.

San Diego County is currently working to update its General Plan, which has not been comprehensively updated since 1979 and has been the subject of substantial modification over the years. During this period, considerable growth and change has taken place, leading to the incorporation of a number of cities and to annexation of lands on the periphery of the unincorporated area. The update process is a multi-year project, which began in August 1998, and is referred to as the General Plan 2020. Until the completion of the General Plan Update, the existing San Diego County General Plan (1979) Parts I through 12 will serve as the principle land use policy document for the project areas (San Diego, 1979).

Imperial County

Imperial County extends over 4,597 square miles, bordering on Mexico to the south, Riverside County to the north, San Diego County on the west, and the Colorado River on the east. The

terrain varies from 235 feet below sea level at the Salton Sea to 4,548 feet at Blue Angel Peak. The project area includes only the south-central portion of the County at the U.S./Mexico border.

The predominant land use within Imperial County is agricultural and related industries. Other significant land uses within the County include government, geothermal electric power plants, state prisons, retail trade, and other commercial services. The Imperial County General Plan serves as the principle land use policy document for the unincorporated areas within the County (Imperial County, 1993).

4.9.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO LAND USE AND PLANNING

LOCAL REGULATIONS

General Plan

City and county General Plans provide the most comprehensive land use planning documentation for the project area. As required by Government Code Section 65300 (State Planning and Zoning Law), local governments are required to prepare and adopt a comprehensive and long-term General Plan as a guide for future development. As shown on **Figures 3-1 through 3-15** (refer to **Table 3-1** for specific jurisdictions) the project area encompasses numerous cities and counties and would be subject to the local plans and policies of these cities and counties. As mentioned above, each city's or county's General Plan provides goals, policies, and implementation measures that, together with land use designations and zoning codes, are designed to guide land use and resource planning and development. Topical "elements" required by State law include land use, circulation, housing, conservation, open space, noise, and safety. Other topics frequently addressed by local governments include public facilities, parks and recreation, community design, and growth management, among others. County General Plans must cover areas not included by city General Plans (i.e., unincorporated areas) and must remain consistent with city General Plans.

Zoning

Zoning regulations vary by jurisdiction throughout project area. Within some jurisdictions, construction of fiber optic facilities is permitted as an allowable use under the zoning ordinance. In other jurisdictions, a conditional use permit or similar discretionary action would be required. Typically, discretionary actions require notification at a public hearing. At the hearing, the local zoning board or zoning administrator would consider the proposal, public testimony, and the findings of a CEQA review. If approved, subsequent activities could be required to meet conditions relating to its architectural design, appearance, and construction intended to comply with local ordinance or environmental quality requirements.

Specific and Master Plans

A city or county may also provide land use planning guidance by developing community and/or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the General Plan. Some jurisdictions have master plans adopted to guide the installation of telecommunication-related facilities. As subsequent activities are proposed, Sempra Communications will be required to adhere to the policies and objectives contained within a Community, Master, and/or Specific Plan in addition to those contained in the city's or county's General Plan.

Growth Control

Local growth control endeavors to control or manage community growth through various methods, including restraining development to infrastructure capacity, limiting the number of new housing units, setting limits on the increase of commercial square footage, or the adoption of urban growth boundaries. Instituting growth control is generally in response to changes in a community or area that are perceived as undesirable, such as rapid increases in residential or commercial development, roadway congestion, or suburbanization of open space. Growth control measures have been imposed in various parts of California, as initiatives, city or county council actions, General Plan policies, or zoning changes. In a majority of the project area, numerous counties have adopted urban growth boundaries or urban limit lines to constrict urban growth from encroaching into open space, agricultural, and/or other environmentally sensitive areas.

STATE AGENCIES

California Coastal Commission

The California Coastal Commission (CCC) was established by voter initiative in 1972 (Proposition 20) and made permanent by the Legislature in 1976. The mission of the Commission, as the lead agency responsible for carrying out California's coastal management program, is to plan for and regulate development in the coastal zone consistent with the policies of the California Coastal Act. The CCC is also one of two designated State coastal management agencies for the purpose of administering the federal Coastal Zone Management Act in California. This federal designation gives CCC control over direct federal development and other federally licensed or assisted activities, many of which are not otherwise subject to state control.

The coastal zone generally extends three miles seaward and about 1,000 yards inland. However, in particularly important and generally undeveloped areas where there can be considerable impact on the coastline from inland development, the coastal zone extends to a maximum of 5 miles inland from mean high tide line. In developed urban areas, the coastal zone extends substantially less than 1,000 yards inland. The coastal zone established by the Coastal Act does not include San Francisco Bay. The Bay Conservation and Development Commission (BCDC) has this authority within San Francisco Bay while the CCC exercises this authority relative to the rest of California's coastal zone. For this reason, subsequent activities that enter the coastal zone within

the Bay Area will require the approval of BCDC, whereas CCC's approval will be required for areas outsider the Bay Area.

The CCC's jurisdiction in the coastal zone (which is specifically mapped) is broad and applies to all private and public entities and covers virtually all development activities, including any division of land, a change in the intensity of use of state waters and of public access to them. The Coastal Act includes specific policies (see Division 20 of the Public Relations Code [PRC]) relating to the provision of public access and recreation, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, universities and public works. These policies constitute the statutory standards applied to planning and regulatory decisions pursuant to the Coastal Act. Development within the coastal zone may not commence until a coastal development permit has been issued by either the CCC or a local government that has a CCC-certified local coastal program.

In order to carry out the policies of the Coastal Act, each of the 73 cities and counties in the coastal zone are required to prepare a local coastal program (LCP) for the portion of its jurisdiction within the coastal zone. The LCP plan must be submitted to the CCC for certification. With an approved LCP, cities and counties control coastal development that accords with the local coastal plan; if no local coastal plan has been approved, the CCC controls coastal development. Almost all development activity within the coastal zone is subject to permit approval in accordance with LCPs. The CCC has unusually broad authority to regulate development in the Coastal Zone because a project that would require a building or grading permit from the city or county would also require a permit from the CCC. Likewise, any proposed activities that would enter the coastal cone of a county or city would require the approval of the Coastal Commission and local jurisdiction, if an LCP is adopted. **Table 4.9-1** provides a list of the Counties and Cities within the project area, in which an LCP has been approved, denied or is currently absent.

TABLE 4.9-1
SUMMARY OF THE STATUS OF LOCAL COASTAL PLANS FOR COUNTIES AND MUNICIPALITIES WITHIN THE PROJECT AREA

Local Jurisdiction	Status	Implementation Plan	Date of Implementation
North Central Coast District			
Marin County South (Unit 1)	Certified	Effective and Issuing Permits	5/5/81
Marin County North (Unit 2)	Certified	Effective and Issuing Permits	6/3/81
San Francisco City/County A	Certified	Effective and Issuing Permits	3/14/86
San Mateo County	Certified	Effective and Issuing Permits	4/1/81

TABLE 4.9-1 (continued)
SUMMARY OF THE STATUS OF LOCAL COASTAL PLANS FOR COUNTIES AND MUNICIPALITIES WITHIN THE PROJECT AREA

Local Jurisdiction	Status	Implementation Plan	Date of Implementation
Olympic Club	None	CCC Issuing Permits	---
Daly City	Certified	Effective and Issuing Permits	3/14/84
Pacifica	Certified	Effective and Issuing Permits	6/7/94
Half Moon Bay	Certified	Effective and Issuing Permits	4/10/96
Central Coast District			
Santa Cruz County	Certified	Effective and Issuing Permits	1/13/83
Santa Cruz (City)	Certified	Effective and Issuing Permits	5/9/85
Capitola	Certified	Effective and Issuing Permits	4/13/90
Watsonville	Certified	Effective and Issuing Permits	11/15/88
South Coast District			
Loa Angeles County			
Marina Del Rey / Ballona	Certified	Effective and Issuing Permits	12/13/90
Playa Vista "A"	None	CCC Issuing Permits	---
Los Angeles (City)			
Pacific Palisades	None	CCC Issuing Permits	---
Venice	Certified	CCC Issuing Permits	---
Playa Vista	Certified	CCC Issuing Permits	---
Del Rey Lagoon	Denied	CCC Issuing Permits	---
Airport/Dunes	Denied	CCC Issuing Permits	---
Santa Monica	Certified	CCC Issuing Permits	---
El Segundo	Certified	Effective and Issuing Permits	2/4/82
Manhattan Beach	Certified	Effective and Issuing Permits	5/12/95
Hermosa Beach	Certified	CCC Issuing Permits	---
Redondo Beach	Certified	CCC Issuing Permits	---
Torrance	Certified	CCC Issuing Permits	---
P.V. Estates	Certified	Effective and Issuing Permits	12/12/91
Rancho Palos Verdes	Certified	Effective and Issuing Permits	4/24/83
Long Beach	Certified	Effective and Issuing Permits	5/21/81
Avalon	Certified	Effective and Issuing Permits	5/12/81
Orange County			

TABLE 4.9-1 (continued)
SUMMARY OF THE STATUS OF LOCAL COASTAL PLANS FOR COUNTIES AND MUNICIPALITIES WITHIN THE PROJECT AREA

Local Jurisdiction	Status	Implementation Plan	Date of Implementation
N. Sunset Beach	Certified	Effective and Issuing Permits	10/28/83
N Bolsa Chica	Certified	CCC Issuing Permits	---
N. Santa River	None	CCC Issuing Permits	---
N. Santa Ana Heights	Denied	CCC Issuing Permits	---
Newport Coast	Certified	Effective and Issuing Permits	1/14/88
Aliso Viejo	Certified	Effective and Issuing Permits	9/29/83
S. Emerald Bay	Certified	Effective and Issuing Permits	9/13/89
Seal Beach	Certified	CCC Issuing Permits	---
Huntington Beach	Certified	Effective and Issuing Permits	3/15/84
Costa Mesa	None	CCC Issuing Permits	---
Newport Beach	Certified	CCC Issuing Permits	---
Irvine City	Certified	Effective and Issuing Permits	3/2/82
Laguna Beach	Certified	Effective and Issuing Permits	1/13/93
Laguna Niguel	Certified	Effective and Issuing Permits	11/14/90
Dana Point	Certified	Effective and Issuing Permits	9/13/89
San Clemente	Certified	CCC Issuing Permits	---
San Diego District			
San Diego County	Certified	CCC Issuing Permits	---
Oceanside	Certified	Effective and Issuing Permits	3/11/86
Carlsbad	None	CCC Issuing Permits	---
Agua Hedionda	Certified	CCC Issuing Permits	---
Mello I	Certified	Effective and Issuing Permits	9/30/80
Mello II	Certified	Effective and Issuing Permits	10/1/80
W. Batiquitos	Certified	Effective and Issuing Permits	11/1/85
E. Batiquitos	Certified	Effective and Issuing Permits	4/14/88
Carlsbad (Village Redevelopment Area)	Certified	Effective and Issuing Permits	12/8/87
Encinitas	Certified	Effective and Issuing Permits	5/11/95
Solana Beach	None	CCC Issuing Permits	---
Del Mar	Certified	CCC Issuing Permits	---
San Diego (City)			

TABLE 4.9-1 (continued)
SUMMARY OF THE STATUS OF LOCAL COASTAL PLANS FOR COUNTIES AND MUNICIPALITIES WITHIN THE PROJECT AREA

Local Jurisdiction	Status	Implementation Plan	Date of Implementation
North City	Certified	Effective and Issuing Permits	7/13/88
La Jolla	Certified	Effective and Issuing Permits	7/13/88
Pacific Beach	Certified	Effective and Issuing Permits	7/13/88
Mission Beach	Certified	Effective and Issuing Permits	7/13/88
Mission Bay	Denied	CCC Issuing Permits	---
Ocean Beach	Certified	Effective and Issuing Permits	7/13/88
Peninsula	Certified	Effective and Issuing Permits	7/13/88
Centre City	Certified	Effective and Issuing Permits	7/13/88
Barrio Logan	Certified	Effective and Issuing Permits	7/13/88
Otay Mesa	Certified	Effective and Issuing Permits	7/13/88
Tijuana River Valley	Certified	Effective and Issuing Permits	7/13/88
Border High	Certified	Effective and Issuing Permits	7/13/88
Coronado	Certified	Effective and Issuing Permits	1/11/84
National City	Certified	Effective and Issuing Permits	4/9/91
Chula Vista	Certified	Effective and Issuing Permits	9/27/85
South Bay Island	Certified	CCC Issuing Permits	---
Imperial Beach	Certified	Effective and Issuing Permits	9/26/84

A = LCP applies County-wide.

SOURCE: California Coastal Commission, 2001 (Status of LCP Program: FY 00-01 Annual Report)

An LCP includes a land use plan (LUP) which is the relevant portion of the local General Plan, including any maps necessary to administer it, and the zoning ordinances, zoning district maps, and other legal instruments necessary to implement the land use plan. Coastal Act policies are the standards by which the Commission evaluates the adequacy of LCPs. Amendments to certified LUPs and LCPs only become effective after approval by the CCC. To ensure that coastal resources are effectively protected in light of changing circumstances, such as new information and changing development pressures and impacts, the CCC is required to review each certified LCP at least once every five years.

The CCC must review and act on all port master plans and any amendments to them. Port master plans are required for the industrial ports of Los Angeles, Long Beach, and San Diego.

Commission approval is necessary to allow port expansions to meet future growth needs. A similar requirement applies to land areas of universities in the coastal zone (i. e. the University of California campuses at Santa Cruz and San Diego; and San Diego State University).

California Department of Transportation

Caltrans' jurisdiction includes right-of-ways of state and interstate routes within California. Any work within the right-of-way of a federal or state transportation corridor is subject to Caltrans regulations governing allowable actions and modifications to the right-of-way. Caltrans issues permits to encroach on land within their jurisdiction to ensure encroachment is compatible with the primary uses of the State Highway System, ensure safety, and to protect the State's investment in the highway facility. The encroachment permit requirement applies to persons, corporations, cities, counties, utilities, and other government agencies.

Caltrans includes the Division of Aeronautics, which is responsible for airport permitting and establishing a county Airport Land Use Commission (ALUC) for each county with one or more public airports. ALUCs are responsible for the preparation of land use plans for areas near aviation facilities. Additionally, the Division of Aeronautics publishes *the Airport Land Use Planning Handboo*k. *The Handbook* provides Airport Land Use Commission procedures and plans and addresses airport land use compatibility issues, specifically noise and safety compatibility concepts and issues. CEQA requires that a proposed project located within the boundaries of a comprehensive Airport Land Use Plan or a project located within two nautical miles of a public airport shall utilize the Airport Land Use Planning Handbook.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CDF) reviews and approves plans for timber harvesting on private lands. In addition, through its responsibility for fighting wildland fires, the CDF plays a role in planning development in forested areas. Management and protection is also a part of the mission of the California Department of Parks and Recreation (CDPR). Different park designations dictate the extent to which natural resources are a management priority; natural preserves, state parks, state reserves and state wilderness designations indicate that the area has outstanding natural features. CDPR is a trustee agency that owns and operates all state parks and participates in land use planning that affects state parkland.

California Department of Conservation

In 1975, the USDA Natural Resources Conservation Service (NRCS) began a mapping program to produce agricultural resource maps based on soil quality and land use. In 1982, the State of California created the Farmland Mapping and Monitoring Program within the California Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, offer tax incentives for agricultural land preservation by ensuring that land will be

assessed for its agricultural productivity rather than its highest and best uses. The California Department of Conservation administers the Williamson Act for the conservation of farmland and other resource-oriented laws. The responsibilities of the Department of Conservation are described further in the Agricultural Resources Setting of this Chapter.

California Department of Fish and Game

The mandate of the California Department of Fish and Game (CDFG) is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. In particular, CDFG is required under the California Endangered Species Act (CESA), the California Native Plant Protection Act, CEQA, and the Natural Community Conservation Planning Act to conserve species through listing, habitat acquisition and protection, review of local land use planning, multi-species conservation planning, stewardship, recovery, research, and education. CDFG protects rare, threatened and endangered species by managing habitat in legally designated ecological reserves or wildlife areas. CDFG responsibilities under CESA are described in the Biological Resources section of this chapter.

California State Lands Commission

The California State Lands Commission (CSLC) was established in 1938 with authority detailed in Division 6 of the California Public Resources Code. When California became a state in 1850, it acquired nearly 4 million acres of land underlying the State's navigable and tidal waterways. Known as "Sovereign Lands", these lands included the beds of 1) more than 120 rivers, streams and sloughs; 2) nearly 40 non-tidal navigable lakes, such as Lake Tahoe and Clear Lake; 3) the tidal navigable bays and lagoons; and 4) the tide and submerged lands[1] adjacent to the entire coast and offshore islands of the State from the mean high tide line to three nautical miles offshore (Government Code Section 56740). The State holds its "sovereign lands" in Public Trust. They can only be used for public purposes consistent with provisions of the Public Trust such as fishing, water dependent commerce and navigation, ecological preservation and scientific study. Any locations where subsequent activities cross lands in sovereign ownership of the state would require approval from the CSLC.

FEDERAL REGULATIONS

National Environmental Policy Act

The National Environmental Policy Act (NEPA) provides general information on the effects of federally funded projects. The act is implemented by regulations included in the Code of Federal Regulations (40CFR6) which require careful consideration of the environmental effects of Federal actions or plans, including projects that receive federal funds. Impacts on land uses and

[1] "Submerged lands," as used in this section, includes, but is not limited to, lands underlying navigable waters, which are in sovereign ownership of the state whether or not those waters are subject to tidal influences.

conflicts with state, regional, or local plans and policies are among the considerations included in the regulations. The regulations also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

FEDERAL AGENCIES

Bureau of Land Management

The Bureau of Land Management (BLM) manages large rural land areas, including land that is environmentally sensitive. The BLM governs the uses that will be allowed on land that it manages, striving to balance environmental protection and conservation goals with other uses such as recreation and grazing. Land managed by the BLM may be encountered within the project area. The entire eastern portion of the southern California geographic region is dominated by a public/private "checkerboard" of lands that make up BLM managed areas. The California Desert Conservation Area Plan is used to manage BLM-controlled areas. The Plan area provides a recreation opportunity spectrum that includes use of desert open space and scenic resources, dispersed recreation activities, nature studies, trails, education and research opportunities, wilderness areas, off-highway vehicle use, and competitive vehicular events (such as dry-lake sailing and motorized vehicle races). In addition to its land management responsibilities, BLM also implements biological resource management policies through its designation of Areas of Critical Environmental Concern.

The desert areas in the eastern portion of the southern California region are largely owned and managed by the BLM. Several field offices administer BLM lands within this region of the state: El Centro (for Imperial County); Barstow (for central San Bernardino County); Needles (for eastern San Bernardino County); Bakersfield (for BLM lands in Ventura County); Ridgecrest (for northern Los Angeles and northwestern San Bernardino Counties); and Palm Springs/South Coast (for southern Los Angeles, southwestern San Bernardino, Orange, and Riverside Counties).

US Forest Service

The US Forest Service USFS is responsible for the conservation of large areas of National Forest land that it manages. National forests account for several millions of acres of land in the southern California region, and are primarily managed for outdoor recreation uses (such as camping, picnicking, hiking, backpacking, riding, fishing, hunting, skiing, sightseeing, nature interpretation) and for resource preservation by USFS. Several National Forests are in close proximity to numerous segments of the project area. These forests include the Cleveland National Forest, Angeles National Forest, and San Bernardino National Forest. These national forests also contain several, more protected, Wilderness Areas.

US Fish and Wildlife Service

The US Fish and Wildlife Service (USFWS) administers the Federal Endangered Species Act (FESA) and designates critical habitat for endangered species to carry out its mission to conserve,

protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of people. Critical habitat areas cannot be disturbed without permission from USFWS and/or other federal agencies, depending on land ownership. USFWS responsibilities under FESA are described in the Biological Resources setting section of this chapter.

USFWS also manages a system of land and waters for the conservation of wildlife and associated ecosystems. These National Wildlife Refuges are primarily managed for the preservation and protection of unique or important resources and ecosystems. USFWS operates several wildlife refuges throughout the project area, including the San Francisco Bay National Wildlife Refuge (Alameda, Santa Clara, and San Mateo Counties) Salton Sea National Wildlife Refuge (in Imperial County) and Hopper Mountain National Wildlife Refuge (in Ventura County).

US Army Corps of Engineers

Among its responsibilities, the US Army Corps of Engineers (Corps) administers Section 404 of the Clean Water Act, which governs specified activities in waters of the United States, including wetlands. In this role, the Corps requires that a permit be obtained if a project would place structures, including dredged or filled materials, within navigable waters or wetlands, or result in alteration of such areas. Key provisions of Section 404 are described in the Biological Resources setting section in this chapter.

National Park Service

The National Park Service (NPS) manages national parks and wilderness areas, the latter being less accessible, less developed, and often less intensively visited. The purpose of NPS is to manage the natural resources of the national park system to maintain, rehabilitate, and perpetuate their inherent integrity. The natural resource policies of NPS are aimed at providing the American people with the opportunity to enjoy and benefit from natural environments evolving through natural processes minimally influenced by human actions.

NPS owns and operates all national parks and is responsible for accommodating conservation and recreation needs for the land it manages, which are frequently in environmentally sensitive areas. Recreation and open space managed by the consists of the Point Reyes National Seashore and Golden Gate National Recreational Area in Marin County, Joshua Tree National Monument in Riverside and San Bernardino Counties, a portion of Death Valley National Monument in San Bernardino County, and the 150,000-acre Santa Monica Mountains National Recreation Area in Ventura and Los Angeles Counties. Recreation and open space features in national monuments generally consist of camping areas, day use areas, controlled trail, and sightseeing facilities. NPS also sponsors a variety of visitor service, public service, and community outreach programs.

HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

A Habitat Conservation Plan (HCP) is a land use plan that allows nonfederal landowners to obtain an "incidental take permit" for species that are listed as threatened or endangered under

FESA in return for conservation commitments. Incidental take permits allow landowners to carry out specified economic activities on their land that destroy habitats or otherwise harm, or "take," threatened or endangered species. The Secretary of the Interior or the Secretary of Commerce must approve an HCP. Prior to this approval, the appropriate Secretary must determine that the landowner's activities will not reduce the likelihood of species survival and recovery and that the adverse impacts of those activities will be mitigated to the maximum extent practicable. Additionally, the landowner needs to ensure that there will be adequate funding to carry out the HCP.

The Natural Community Conservation Planning (NCCP) program of CDFG is an effort by the State of California and numerous private and public partners that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. An NCCP identifies and provides for the regional or area wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The program, which began in 1991 under the State's NCCP Act, is broader in its orientation and objectives than CESA and FESA. These laws are designed to identify and protect individual species that have already declined in number significantly. The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use. The program seeks to prevent the controversies caused by listings by focusing on the long-term stability of wildlife and plant communities.

In areas where HCPs and/or NCCPs have been adopted or could potentially be adopted, Sempra Communications would be required to follow guidelines provided in the plan. HCPs or NCCPs adopted or pending for areas residing within the project area are provided in **Table 4.9-2**. A list of the species (i.e., threatened or endangered species, wetlands, etc.) found in each of the geographical areas, designated critical habitat, and permitting requirements are discussed in Section 4-4, Biology.

4.9.3 IMPACTS AND MITIGATION MEASURES

APPROACH TO ANALYSIS

The analysis of land use impacts of the proposed project focuses on the changes expected to result from project implementation and evaluates the potential significance of such changes, based on criteria discussed below. The geographic scope of the project encompasses urbanized regions within portions of Northern, Central and Southern California. The approach of this analysis is intended to provide a general assessment of potential land use impacts resulting from the entire scope of operations defined in Chapter 3.0. These operations may include ground and/or aerial installation of fiber optic cable facilities, development of regenerator and/or OP-AMP stations, construction (installation) methods and procedures, project design and management.

Land use impacts associated with subsequent activities would, in most cases, be short-term and occur during the construction phase of those activities. Subsequent activities could result in temporary disruptions to adjacent land uses resulting from nuisance effects such as noise, dust,

TABLE 4.9-2
SUMMARY OF HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS FOR COUNTY AND MUNICIPALITY WITHIN THE PROJECT AREA

Jurisdiction	NCCP or HCP	Status	Key Habitats
Sacramento Valley			
Natomas Basin	HCP	Adopted	Wetlands, Agriculture
Yolo County	HCP	Adopted	Vernal pools, Wetlands, Agriculture
Central Coast Region			
Eastern Contra Costa County	HCP	Not Adopted	Grassland, Oak Woodland, Chaparral
Eastern Alameda County	NCCP	Not Adopted	Grassland
San Jose Burrowing Owl Plan	NCCP	Planning Suspended	Grassland
Santa Clara County	NCCP	Not Adopted (Scoping Process)	Grassland
South Coast Region			
Orange County Central/Coastal	NCCP	Adopted	Coastal Sage Scrub
Orange County Northern	NCCP	Adopted	Coastal Sage Scrub
Orange County Southern	NCCP	Planning Stages	Coastal Sage Scrub
Palos Verdes Peninsula	NCCP	Planning Stages	Coastal Sage Scrub
Shell HCP	HCP	Adopted	Not Available
Ocean Trails	HCP	Adopted	Coastal Sage Scrub
San Diego Multiple Species Conservation Plan	NCCP	Adopted	Coastal Sage Scrub
Inland Desert Region			
Western Riverside County	NCCP	Planning Stages	Riversidean Sage Scrub
Riverside County Stephens' Kangaroo Rat	NCCP	Planning Stages	Stephens' Kangaroo Rat Habitat
San Bernardino County	NCCP	Planning Suspended	Riversidean Sage Scrub

SOURCE: California Department of Fish and Game, Habitat Conservation Planning Division Branch, 2001

construction traffic, and possible interference of access to locations adjacent to construction activities. Once operational, the project would have negligible long-term or permanent land use impacts. Construction areas would be restored to pre-project conditions, with the exception of

proposed regenerator and/or OP-AMP stations, which would be constructed according to the methods outlined in Chapter 3.0, Project Description.

Due to the programmatic nature of the project, procedures were developed so that subsequent activities will be analyzed in relation to any potential conflicts with existing county and/or city polices regarding performance standards, which were adopted to avoid or mitigate significant environmental impacts associated with those activities. Land use impacts would be considered significant if the proposed activities would conflict with county and city plan policies established to avoid or mitigate environmental impacts, adopted in response to significant impacts outlined in the relevant General Plan.

SIGNIFICANCE CRITERIA

In accordance with Appendix G of the CEQA Guidelines, the project would result in a significant impact on the environment if it would:

- Physically divide an established community;
- 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 a significant environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

IMPACT ANALYSIS

Impact LUP-1: The project area includes numerous jurisdictions throughout California. The implementation of subsequent activities could result in possible conflicts with applicable local land use plans, policies, and regulations. (Potentially Significant).

Subsequent activities may be inconsistent with goals and policies set forth in local or county land use plans. Although most plans allow the installation of utilities, conditional use permits or similar discretionary action by local agencies may be required. There may also be relevant policies applicable to certain areas and/or types of telecommunications infrastructure, and therefore consistency may only be determined once a specific route is identified.

Sempra Communications would be required to obtain encroachment permits to work on public roadway rights-of-way and cross railroad lines and highways, and would obtain any land use permits needed, (e.g., conditional use permits) to comply with local regulations governing land use. The following mitigation is a process that provides a communication link with applicable City and County staff and provides a method to acknowledge the local plans and policies that apply to the proposed activity, and identify other required permits. Most jurisdictions do not have

General Plan policies regarding telecommunications facilities, and public rights-of-way are commonly used as utility corridors. Implementation of Mitigation Measure LU-1, below, would ensure that impacts from potential conflicts with land use plans and policies would be less than significant.

Mitigation Measure LUP-1: The applicant shall comply with local, state, and federal plans, policies, and regulations. Compliance will be ensured through the implementation of the following systematic process for each proposed activity prior to construction:

- During the initial design stages of subsequent activities, the applicant shall consult with local planning staff to determine any required permits, and to assess the activity's consistency with relevant local land use plans, policies, zoning, and relevant ordinances. Preferred alignments for fiber optic facilities installation include previously disturbed right-of-ways in areas designated on applicable City and County Plans for industrial, office/professional, commercial, highway commercial, or public uses. Subsequent activities shall limit or avoid to the extent feasible interactions with residential, recreational, park and natural preserves (e.g. federal, state, county, or other natural areas). The applicant shall refer to **Appendix H** for guidance on applicable land use documentation (General Plan Land Use Element) for each local jurisdiction within the project area. In consultation with the appropriate planning agency, the following plans should be considered for applicability to subsequent activities:

  - Community, Specific, and/or Master Plans
  - Local Coastal Plan (if the activity enters the coastal zone)
  - Airport Land Use Plan (if the activity within 2 miles of an airport)
  - Infrastructure Improvement Plans
  - Regional Plans
  - Habitat Conservation Plan (HCP) and/or Natural Community Conservation Plan (NCCP) (the applicant shall consult with the regulating body to ensure project compliance.)

  The purpose of this consultation and plan review is to ensure conformity with local design, planning, and performance standards. The consistency analysis will also be used to determine which jurisdictions will require a condition use permit (CUP) or other discretionary action.

- In addition to consultation with local planning departments, the applicant shall also consult with local public works departments prior to the installation of any fiber optic cable facilities to determine the location, timing, and status of local infrastructure improvements. If possible, subsequent activities shall be designed for installation concurrently with other planned infrastructure improvements to avoid multiple disturbances within public rights of way.

- Prior to the approval of subsequent activities, the applicant shall provide the CPUC with a report documenting the results of the consultation process with each relevant local jurisdiction as part of their work plan (Appendix B). The report shall include a list of local agencies consulted, the name of individuals consulted with each agency (including contact

information), land use documents reviewed and the activity's consistency with the applicable plans, policies and ordinances.

Significance after Mitigation: Less than significant.

REFERENCES – Land Use and Planning

Alameda County, 1994. Alameda County General Plan. Adopted May 1994.

Association of Bay Area Governments, Projections - 98, December 1997

California Coastal Commission, 2001. Report on the Status of the LCP Program: FY 00-01 Annual Report.

California Department of Fish and Game, 2001. Habitat Conservation Planning Division Branch, 2001. Status of HCPs and NCCPs throughout the California.

Center for Demographic Research, 2001. Demographic information for Orange County.

Contra Costa County, 1996. Contra Costa County General Plan 1995-2010. Adopted July, 1996.

Fresno, 1995. Fresno County General Plan, Adopted December 1995.

Imperial County, 1993. Land Use Element of Imperial County General Plan. Adopted October 1993

Los Angeles County, 1994. Los Angeles County General Plan. January 1994.

Marin County, 1994. Marin Countywide General Plan. Adopted January 1994.

Orange County, 1995. Land Use Element of the Orange County General Plan. Adopted March 1995.

Riverside County, 1992. Riverside County Comprehensive General Plan. Adopted December 1992.

Sacramento County, 1997. Sacramento County General Plan. Adopted May 1997.

San Bernardino County, 1999. San Bernardino County General Plan Parts 1 and 2 with updates through April 1999.

San Diego County, 1979. Part II: Regional Land Use Element of the San Diego County General Plan. Adopted January 1979.

San Francisco County and City, 1995. Master Plan of the City and County of San Francisco. Adopted September 1995.

San Mateo County General Statistics, 2002. County General Statistics. http://www.co.sanmateo.ca.us/planning/stats.html. Accessed May 20, 2002

San Mateo County, 1986. San Mateo County General Plan. Adopted November 1986.

Santa Clara County, 1994. Santa Clara County General Plan Parts 1 through 6. Adopted December 1994.

Santa Cruz County, 1994. General Plan and Local Coastal Program for the County of Santa Cruz. Adopted December 1994.

4.10 NOISE

4.10.1 SETTING

INTRODUCTION

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Because sound pressure can vary by over one trillion times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ears decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA).[1] Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

NOISE DESCRIPTORS AND PRINCIPLES

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. Rather, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic

[1] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- subjective effects of annoyance, nuisance, dissatisfaction;
- interference with activities such as speech, sleep, learning; and
- physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants generally experience noise in the last category. There is no complete satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- a change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- a 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion, hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noise, such as a large

industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate, approximately 4 to 6 dBA.

NOISE SOURCES AND LEVELS

Transportation sources, such as automobiles, trucks, trains, and aircraft, are the principal sources of noise in the urban environment. Along major transportation corridors, noise levels can reach 80 DNL, while along arterial streets, noise levels typically range from 65 to 70 DNL. Industrial and commercial equipment and operations also contribute to the ambient noise environment in their vicinities.

SENSITIVE RECEPTORS

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. In general, residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

4.10.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO NOISE

Noise issues are typically addressed in local General Plan policies, and local noise ordinance standards. The proposed project for Sempra Communications would be located in cities and municipalities of 15 counties in the state of California. Most of these cities and counties have adopted general plans. California Government Code Section 65302 lists the noise element as one of the seven essential elements cities and counties must include as part of their general plans. The General Plan noise element is a planning document that contains goals and policies to ensure compatible land use development with respect to noise. Cities and counties adopt noise ordinances for the implementation of the policies and standards in the general plan. Local General Plan policies and noise ordinance standards will be applicable to the proposed project when constructing or operating within the various jurisdictions.

4.10.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The analysis of the significance of impacts of the proposed project is based on the general criteria listed below. Based on the *CEQA Guidelines,* a project may be deemed to have a significant effect on the ambient noise environment if it would result in:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- 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

As described earlier, a change in noise levels of less than three dBA is not discernible to the general population; an increase in average noise levels of three dBA is considered barely perceptible, while an increase of five dBA is considered readily perceptible to most people (Caltrans, 1998). For evaluating permanent increases in ambient noise levels, the following specific criteria are used for this analysis: a change of 5 DNL or more is considered significant where the resultant noise level remains "normally acceptable" for the affected land uses and a change of 3 DNL or more is considered significant where the resultant noise level would exceed the maximum level considered "normally acceptable" for the affected land uses.

IMPACT MECHANISMS

The impact mechanisms of the project would be the temporary increase in noise from construction equipment during the underground and aerial installation of the fiber optic cable facilities and the long-term increase in noise from operation of equipment at the OP-AMP stations. The equipment installed at OP-AMP stations may vary to include air conditioning units and an emergency back-up generator while others could rely on the air conditioning units within existing buildings and would not have an emergency back-up generator. Temporary increases in noise due to construction and long-term increases from equipment at the OP-AMP stations would have the potential to affect sensitive land uses, such as residences along route segments and within the vicinities of the OP-AMP stations. It is important to note, however, that there may be very few OP-AMP stations proposed. In addition, as advancement in fiberoptic technology continues, the need for new OP-AMP stations diminishes.

Impact NOI-1: Subsequent activities could generate noise levels in excess of local standards during project construction and operation. (Potentially Significant)

Subsequent activities could involve temporary noise sources associated with construction and long-term noise sources associated with the operation of HVAC units and generators at the OP-AMP stations. Such noise sources are typically regulated on the local level through enforcement of noise ordinances, implementation of general plan policies, and imposition of conditions of approval for permits.

Construction associated with subsequent activities could involve installation of new conduit for fiber optic cable using four different methods of installation – 1) open trenching, 2) plow and trench installation, 3) directional boring and 4) aerial installation on transmission and distribution

towers, and bridge attachments. Construction involving open trenching would typically proceed at a rate of 85 feet per day (metropolitan street trenching) to 2,600 feet per day (dirt trenching). Industrial or residential street trenching would proceed at the rate of approximately 200 feet per day. Directional drilling or boring, which would be a technique used at selected locations would typically proceed at a rate of approximately 300 feet per day, while aerial installation would proceed at the rate of approximately 1–3 miles per day.

Construction would also involve site preparation, construction of concrete slab foundations, and installation of structures and equipment at the OP-AMP stations (some of the OP-AMP stations could be installed within existing commercial buildings). The new structures at OP-AMP stations would be pre-fabricated concrete equipment buildings, and as such, they would not be constructed, per se, but would be attached to the concrete slab foundations.

During the construction period, noise levels generated by construction for installation of fiber optic cable facilities would vary depending on the particular type, number, and duration of use of various pieces of construction equipment. The mix of construction equipment would vary between the different types of construction: street trenching, plow and trench installation, directional boring and aerial installation. For street trenching, the equipment would include an asphalt paver, roller, windrow elevator, grinder, and two backhoes. For directional boring, the equipment would include a vacuum trailer, a drilling machine, a backhoe, a mini-excavator, and a water truck. The installation crew for hanging OPGW on transmission towers includes three 5-ton material trucks, two carry-alls, one cable dolly, one tensioner machine, one pulling machine, two splicing vans, one crane and a helicopter.

Such construction equipment typically generates between 80 and 90 dBA at 50 feet (U.S. Department of Transportation, 1995). Helicopters may be a method used for the proposed OPGW installation to facilitate transmission tower modifications, and in preparation for stringing operations. Helicopter fly-overs are noisier and longer in duration than motor vehicle pass-bys and can generate noise levels of up to 87 dBA. While helicopters can significantly shorten construction time and reduce ground disturbance, they would not be proposed for use in areas sensitive to noise and their use would be limited to the less noise-sensitive daytime hours.

At any one location throughout the project area, the duration of noise impacts would be relatively brief, approximately one to three days, given the rate at which installation would proceed. The duration of noise impacts from construction at OP-AMP stations would be slightly longer.

Most of the various jurisdictions through which subsequent activities would proceed have set standard construction hours and, in some cases, have established construction equipment noise standards as part of either the local general plan noise element or the noise ordinance. As indicated below, Sempra Communications would require its contractors to comply with the construction hour limitations and equipment standards for all applicable jurisdictions. For construction in those jurisdictions where there are no specific construction-related standards, Sempra Communications would require its contractors to limit noisy construction activity to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Given these measures, the project

would not expose persons to or generate noise levels in excess of standards established in local general plans or noise ordinances, or applicable standards of other agencies.

Over the long-term, the project could introduce new stationary equipment noise sources to the OP-AMP sites. The equipment associated with the OP-AMP stations located within existing commercial buildings would not be expected to affect noise levels outside of those buildings and thus would not expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. At locations where the OP-AMP stations would be newly constructed, the equipment would include air conditioning units and, at some of the OP-AMP stations, back-up generators. Generally, each OP-AMP site would include two or more equipment shelters, each of which would have two wall-mounted air conditioning units. Typically, only one of the two air conditioning units at each shelter would be operating at any one time: one would cycle "on" as the other cycles "off." Based on noise measurement data for the model of air conditioning unit used for similar applications (a Marvair Model AVP36 Compac I), each air conditioning unit would generate approximately 62 dBA at 20 feet (Hotinger, 2000). With two shelters, configured side-by-side, the two air conditioning units would generate approximately 65 dBA at 20 feet.

At some of the OP-AMP stations, a diesel-powered, back-up generator would be installed in its own shelter. These generators would provide 60 kilowatts of power and would be operated only for routine testing and maintenance or during an actual interruption in power from the utility grid. Routine testing and maintenance would include weekly tests of one-hour duration or less. Based on noise measurement data for the model of generator used for similar applications (an Onan Model 60DGCB), which includes a mounted muffler, each generator would generate approximately 84 dBA at 23 feet (Hotinger, 2000).

Depending on the jurisdiction in which the OP-AMP stations would be located and the distance to the nearest sensitive receptors from the OP-AMP stations, unmitigated noise levels from the operation of HVAC equipment and emergency standby generators could exceed local noise standards. As subsequent activities are identified, a more detailed, OP-AMP-site specific analysis shall be conducted by a qualified noise analyst to determine if standards in the local noise ordinance or general plan noise element would be exceeded due to the long-term operation of equipment at the OP-AMP stations. Based on the analysis, site-specific mitigation measures shall be identified to reduce any impacts and Sempra Communications would be required to implement the recommended OP-AMP site-specific measures. With implementation of the OP-AMP-specific measures, the project would not expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Mitigation Measure NOI-1a: Sempra Communications would require construction contractors to comply with the construction hours limitations and construction equipment standards set forth in the local general plan noise element and the noise ordinance of all applicable jurisdictions of cities and counties, or in compliance with conditions outlined in acquired permits from those applicable jurisdictions. For construction in those jurisdictions where there are no specific

construction-related standards, Sempra Communications would require its contractors to limit noisy construction activity to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday.

Mitigation Measure NOI-1b: To reduce daytime noise impacts due to construction, Sempra Communications shall require construction contractors to implement the following measures:

- Equipment and trucks used for construction shall utilize the best available noise control techniques (*e.g.*, improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible);

- Impact tools (*e.g.*, jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible; and

- Construction equipment shall be located as far from sensitive receptors as possible.

Mitigation Measure NOI-1c: To the extent feasible, avoid use of helicopters for stringing OPGW cable on transmission towers in residential areas and other sensitive land uses.

Mitigation Measure NOI-1d: If for any reason, construction activities adjacent to any noise sensitive receptors is expected to last more than a week, Sempra Communications shall establish a process for responding to and tracking complaints pertaining to construction noise with the following components:

- A procedure for notifying the local City/County Building Division staff and Police Department;

- A plan for posting signs on-site pertaining to permitted construction days and hours and complaint procedures and who to notify in the event of a problem;

- A listing of telephone numbers (during regular construction hours and off-hours); and

- The designation of a construction complaint manger for the project.

Mitigation Measure NOI-1e: Upon determining locations of OP-AMP stations, a more detailed, OP-AMP site specific noise analysis shall be conducted by a qualified noise analyst to determine the impact of the operation of HVAC equipment and the backup generators on the ambient noise level at nearby sensitive land uses. If the analysis indicates that the operational noise levels are expected to exceed the local noise standards, site-specific mitigation measures recommended by the analyst shall be implemented. The measures may not be limited to the following recommendations but could include some or all of the recommendations to reduce the impact on sensitive receptors to a less than significant level. Sempra Communications shall also be required to design the OP-AMP sites keeping in mind the following measures.

- Modify the air conditioning units or redesign the facility layout such that the air conditioning units would face away from sensitive receptors, to the maximum extent feasible.
- Install generators that provide an equivalent noise reduction greater than the model assumed as the basis for this analysis so as to meet the local noise standards. The required equivalent noise reduction would be determined based on the results of the site-specific noise analysis.
- Restrict the hours during which routine tests of the backup generators can be conducted to the less noise sensitive daytime hours.

Significance after Mitigation: Less than significant.

Impact NOI-2: Subsequent activities could expose sensitive receptors to localized groundborne vibration and groundborne noise. (Potentially Significant)

The project could involve temporary sources of groundborne vibration and groundborne noise during construction from operation of heavy equipment and long-term sources during its operational phase from operation of back-up generators. During construction, operation of heavy equipment would generate localized groundborne vibration and groundborne noise that could be perceptible at any nearby residences or other sensitive uses in the immediate vicinity of the construction route. However, since the duration of impact at any one location would be very brief (from one to three days) and since the impact would occur during less sensitive daytime hours, the impact from construction-related groundborne vibration and groundborne noise would not be significant.

Over the long-term, occasional use of back-up generators could generate groundborne vibration and groundborne noise in the immediate vicinity of generator equipment shelters at the OP-AMP stations located near sensitive land uses. If sensitive land uses are located at sufficient distances from the OP-AMP stations, the groundborne vibration and groundborne noise from the generators would attenuate to a level that would not be perceptible. Installation of the generator on top of an isolator pad at the OP-AMP stations located near sensitive uses would reduce the related groundborne vibration and groundborne noise to a less than significant level since the isolator pad would minimize the vibration produced by the generator. This impact would be further tempered by the fact that the use of the backup generators would normally be one hour per week or less.

Mitigation Measure NOI-2a: Where OP-AMP stations would be located near sensitive land uses, Sempra Communications would install generators on top of isolation pads to reduce the impact of groundborne vibration and noise.

Significance after Mitigation: Less than significant.

Impact NOI-3: Subsequent activities could result in permanent increases in ambient noise levels from use of equipment at OP-AMP stations. (Potentially Significant)

As described under Impact NOI-1, the project could introduce new permanent sources of noise at the OP-AMP stations (excluding OP-AMP stations that would be located within existing commercial buildings). Based on the location of the OP-AMP site and the its distance to the nearest sensitive land uses, this permanent increase in ambient noise level due to the operation of equipment at the OP-AMP stations could lead to a significant impact based on the previously identified significance thresholds. However, as described earlier, the level of significance of this impact can only be determined once the location of the OP-AMP stations has been identified. Therefore, as subsequent activities and OP-AMP locations are identified, a more detailed noise analysis shall be conducted by a qualified noise analyst to analyze the project's impact on the ambient noise level near OP-AMP sites. Increase in ambient noise due to the operation of equipment at the OP-AMP sites shall be compared to the previously identified significance thresholds and local noise standards. To address any significant impacts, Sempra Communications would implement the mitigation measures recommended by the analyst that may include some or all of the measures that are described under Mitigation NOI-1e. With implementation of these measures, the permanent increase in noise at the OP-AMP sites would constitute a less than significant impact.

Mitigation Measure NOI-3: Sempra Communications would implement the measures listed under Mitigation Measure NOI-1e.

Significance after Mitigation: Less than significant.

Impact NOI-4: Subsequent activities could result in temporary and intermittent noise increases during project construction. (Less than Significant)

The project could result in temporary and intermittent noise increases due to construction. (See Impact NOI-3 for a discussion of the noise from back-up generators at the proposed OP-AMP stations, which would represent another intermittent noise source associated with the project.) Project construction-related equipment and activities are described above under Impact NOI-1. The effect of this noise would depend upon how much noise would be generated by the equipment, the distance between construction activities and the nearest noise-sensitive uses, and the existing noise levels at those sensitive uses. Project construction would involve use of equipment that would typically generate noise levels in the 80 to 90 dBA range within 50 feet. It is possible that residential uses could be located as close as 20 to 30 feet from construction equipment along some segments of the alignment. In some areas, intervening structures/sound walls, trees and berms (between the construction zone and residences) may provide some noise attenuation.

Background noise levels would vary depending the location of the alignment. Even in urban areas where background noise levels are relatively high, the noise from construction equipment would be substantially above those background levels. Given compliance with local standards related to allowable construction hours (see Impact NOI-1), project construction would occur when a majority of people would be at work, but retired persons, people who work at home, and people caring for children in their homes could be annoyed by noise when construction activities occur in their immediate vicinity. However, the duration of impact for each sensitive receptor would likely be one to three days, from the commencement of site preparation to the completion of backfilling (shorter in case of aerial installation of OPGW), and given the short duration of the impact, the temporary increase in noise due to project construction would not be significant.

Mitigation Measure: No mitigation is required.

Impact NOI-5: Subsequent activities could be located within an airport land use plan or where such a plan has not been adopted, within two miles of a public use airport and could expose people residing or working in the project area to excessive noise levels. (Less than Significant)

The project does not involve the development of a noise-sensitive land use, and thus, would not expose people to excessive aircraft noise. However, if subsequent activities are located within an airport land use plan or within two miles of a public use airport, construction workers could be temporarily exposed to elevated levels of aircraft noise. However, due to the linear nature of the project this impact would be temporary lasting for one to three days and hence, this impact would be considered less than significant.

Mitigation Measure: No mitigation is required.

Impact NOI-6: Subsequent activities could be located within the vicinity of a private airstrip and would expose people residing or working in the project area to excessive noise levels. (Less than Significant)

The project does not involve the development of a noise-sensitive land use, and thus, would not expose people to excessive aircraft noise. However, if some portions of subsequent alignments are located in the vicinity of a private airstrip, construction workers could be temporarily exposed to elevated levels of aircraft noise. Due to the linear nature of the project this impact would be temporary lasting for a maximum of one to three days and hence, this impact would be considered less than significant.

Mitigation Measure: No mitigation is required.

REFERENCES – Noise

Caltrans, *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, October 1998.

Hotinger, Herb, VFP, Inc., transmittal, February 9, 2000.

U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, April 1995.

4.11 RECREATION

4.11.1 SETTING

This section discusses characteristics of recreational facilities in the vicinity of the project area that could be affected by project construction and operation. Recreational facilities (e.g., parks, campgrounds, picnic areas, beaches, playgrounds, natural reservations, bicycling and hiking trails) are typically developed and maintained by local governments, such as cities, counties and special districts, although state and federal governments also operate such facilities. Due to the programmatic nature of the project and the extensive geographic scope of the project area, all the local recreational facilities that could potentially be affected by the project are not included at this programmatic level of analysis. In addition, while the national parks in the project area are listed here, subsequent activities would likely be planned to avoid potential impacts to the larger parklands, including national parks. As part of work plans submitted by Sempra Communications for subsequent activities, the recreational facilities, if any, that could be affected by the proposed action, would be identified.

The project area includes 15 counties, including Sacramento County in the Sacramento Valley (the northern half of the Central Valley), seven counties in the San Francisco Bay Area-Central Coast region of northern California: Marin, Contra Costa, Alameda, San Francisco, San Mateo, Santa Clara, and Santa Cruz; Fresno County in the San Joaquin Valley (the southern half of the Central Valley); and six counties in southern California: San Bernardino, Los Angeles, Riverside, Orange, San Diego, and Imperial.

These counties are home to neighborhood, county, and regional parks, beaches, historical parks, open space areas, and wilderness areas. The project area includes a total of 116 state parks, historic parks, museums, and recreation areas (see **Table 4.11-1**). Ten national park sites are located in the project area: the Golden Gate National Recreational Area in Marin, San Francisco, and San Mateo counties; Point Reyes National Seashore and Muir Woods National Monument in Marin County, the John Muir National Historic Site in Contra Costa County, and Giant Sequoia National Monument and Kings Canyon National Park in Fresno County, part of Death Valley National Park and all of the Mojave National Preserve in San Bernardino County; the Santa Monica Mountains National Recreation Area in Los Angeles County, and Joshua Tree National Park in Riverside County. Fresno County includes portions of two national Forests, Sierra and Sequoia, and three national forests, Angeles, San Bernardino, and Cleveland, are located in the southern California counties. Four National Wildlife Refuges (NWRs) are located in southern California counties: Seal Beach NWR in Orange County; Cibalo and Imperial NWRs in Imperial County, and Rancho San Diego NWR in San Diego County.

The project area also includes networks of regional, county and local trails. In addition, water and utility districts preserve and manage thousands of acres of watershed lands, and counties or special districts manage open space reserves in many of the counties. City-owned parks and

TABLE 4.11-1
STATE PARKS BY PROJECT COUNTIES

Alameda County	**Orange County**	**San Francisco County**
Bethany Reservoir	Bolsa Chica	Candlestick Point
East Shore	Chino Hills	**San Mateo County**
Lake Del Valle	Corona Del Mar	Ano Nuevo
Robert W. Crown Memorial	Crystal Cove	Bean Hollow
Contra Costa County	Doheny	Burleigh H. Murray Ranch
Franks Tract	Huntington	Butano
John Marsh Home	San Clemente	Gray Whale Cove
Mount Diablo	**Riverside County**	Half Moon Bay
Fresno County	California Citrus	Montara
Millerton Lake	Indio Hills Palms	Pacifica
Imperial County	Lake Perris	Pescadero
Heber Dunes	Mount San Jacinto	Pigeon Point Light Station
Picacho	Salton Sea	Point Montara Light Station
Los Angeles County	**Sacramento County**	Pomponio
Adamson House	Brannan Island	Portola Redwoods
Antelope Valley Calif. Poppy	Calif. State Capitol Museum	San Bruno Mountain
Antelope Valley Indian Mus.	California State Railroad	San Gregorio
A. B. Ripley Desert Woodland	Delta Meadows	Thornton
Castaic Lake	Folsom Powerhouse	**Santa Clara County**
Dockweller	Governor’s Mansion	Henry W. Coe
Kenneth Hahn	Leland Stanford Mansion	**Santa Cruz County**
Leo Carillo	Old Sacramento	Big Basin Redwoods
Los Encinos	Prairie City	Castle Rock
Malibu Creek	State Indian Museum	Henry Cowell Redwoods
Malibu Lagoon	Stone Lake	Lighthouse Field
Pio Pico	Sutter’s Fort	Manresa
Placerita Canyon	**San Bernardino County**	Natural Bridges
Point Dune	Providence Mountains	New Brighton
Robert H. Meyer Mem’l State	Silverwood Lake	Santa Cruz Mission
Saddleback Butte	**San Diego County**	Seacliff
Santa Monica	Anza-Borrego	Sunset
Santa Susana Pass	Border Field	The Forest of Nicene Marks
Tomo-Kahni	Cardiff	Twin Lakes
Topanga	Carlsbad	Wilder Ranch
Verdugo Mountains	Cuyamaca Rancho	
Watts Towers of Simon Rodia	Leucadia	
Will Rogers (State Beach)	Moonlight	
Will Rogers (State Hist. Park)	Ocotillo Wells	
Marin County	Old Town San Diego	
Angel Island	Palomar Mountain	
China Camp	San Elijo	
Marconi Conference Center	San Onofre	
Mount Tamalpais	San Pasqual Battlefield	
Olompali	Silver Strand	
Samuel P. Taylor	South Carlsbad	
Tomales Bay	Tijuana River NERR	
	Torrey Pines (State Beach)	
	Torrey Pines (State Reserve)	

recreation facilities are operated and maintained by the respective parks and recreation departments of those cities.

4.11.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO RECREATION -

Approximately one-third of the cities and 40 percent of the counties in the state have adopted parks and recreation elements as part of their general plans (OPR, 1998). These elements, as well as the land use and open space and conservation elements in general plans without recreation elements, may include a range of policies and standards regarding park and recreational facilities. These plans may also include local definitions of recreational value that differ from that of CEQA. Because of the number and diversity of recreational facilities that could potentially be affected by future actions tiered off of this Program EIR by Sempra Communications, the relevant planning polices would be identified when more detailed information pertaining to a subsequent action is identified in the work plan submitted to the CPUC for final approval. For any construction or other actions associated with project implementation within state park units, the State Department of Parks and Recreation would require, at a minimum, a Right of Entry Permit to be issued by the State Parks. As noted in the setting discussion, subsequent activities would likely be planned to avoid potential impacts to national parks. If any future action tiered off of this Program EIR were to potentially impact any national park, the applicable policies of that park and the National Park Service generally would need to be identified. No other local, state, or federal regulations applicable to recreational resources have been identified at this level of analysis.

4.11.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The analysis of the significance of project impacts is based on the CEQA Environmental Checklist criteria (CEQA Guidelines Appendix G): a project would be deemed to have a significant effect on recreation facilities if it would increase the use of existing neighborhood or regional parks and facilities such that substantial physical deterioration of the facility would occur or be accelerated, or if the project included recreational facilities or required construction that might have an adverse physical effect on the environment. In addition, for the purposes of this analysis, the project would be considered to have a significant environmental impact if it would substantially disrupt the use of existing recreational facilities to the extent that it would affect the recreational value of such facilities.

IMPACT ASSESSMENT

The proposed project involves the installation of fiber optic cable facilities, either underground or overhead, and construction of regeneration or OP-AMP stations. Fiber optic cable facilities would be installed underground primarily within existing roadway, utility, or railroad rights of

way, and would be installed overhead on existing utility poles and electric transmission towers. The project would not include construction of any new recreational areas or the permanent alteration of existing facilities. Because the project would not result in any direct increases in population, it would not contribute to long-term increases in the use of existing recreational facilities, which could lead to or accelerate their deterioration, or contribute to increased demand for new recreational facilities. Consequently, the project would be unlikely to have long-term impacts on recreational facilities.

Impact REC-1: Use of recreational facilities as staging or other work areas could cause or accelerate the physical deterioration of the facility. (Potentially Significant)

The use of recreational facilities such as park parking lots or open space areas as staging or other work areas could accelerate the deterioration of the facility. Implementation of the following measure would reduce this impact to a less-than-significant level.

Mitigation Measure REC-1a: Sempra Communications shall avoid impacts on recreational facilities.

Sempra Communications shall avoid impacts on recreational facilities caused by their use as staging or other work areas by maintaining all work areas within existing utility or roadway rights-of-way, unless required or otherwise authorized by the local city or county parks department or equivalent government entity. If work within a recreational facility is authorized, cleanup and repair of the facility will follow the requirements of the governing agency, in addition to the requirements of this Program EIR.

Significance after Mitigation: Less than significant.

Impact REC-2: The project could intermittently and temporarily disrupt existing nearby recreational facilities for the duration of construction. (Less than Significant)

Construction associated with subsequent activities could temporarily disrupt the use of adjacent or nearby recreational facilities that are adjacent or close to recreational facilities. This could effectively decrease the availability or value of some recreational opportunities, albeit temporarily. In addition, the temporary disruption of access to or use of recreational facilities during construction of proposed activities could temporarily shift demand to other facilities in the vicinity, contributing to the deterioration of those facilities. The project would employ several construction techniques for installing conduit overhead or underground, as described in the Project Description. Typical construction activities for conduit installation would proceed at a rate of 100 to 300 feet per day depending on the type of surface (for underground conduit) and method of construction being employed. Therefore, the disruption of any particular recreational facilities would likely be limited to a matter of days or weeks.

Project construction would not directly affect or alter any recreational facility. Because subsequent activities have not been determined, the specific parks and recreation areas that could be affected are not identified in this Program EIR.

Although construction could be visible and audible from some recreational areas, implementation of construction-related air quality and noise mitigation measure in the Air Quality and Noise sections of this Chapter, respectively, would ensure that construction would not substantially impair the use or value of any such facility and that construction-related nuisance effects on nearby park users would be less than significant.

Mitigation Measure: No mitigation measures are required.

REFERENCES – Recreation

Governor's Office of Planning and Research (OPR), *General Plan Guidelines*, November 1998. http://www.opr.ca.gov/GeneralPlanning/shtml.

4.12 TRANSPORTATION AND TRAFFIC

4.12.1 SETTING

This section describes the existing major transportation networks, and responsible transportation authorities and/or congestion management agencies (CMAs) by county throughout the project area. For all state and federal highways in the state of California, the California Department of Transportation (Caltrans) would be the agency responsible for granting access to facilities' rights-of-way (ROW), as well as approving construction traffic plans that would affect the operations of state and federal facilities. Access to, and/or the approval of construction traffic operations on local and regional routes of significance would be granted and approved by either the affected county's engineering department, or the local city's engineering department. Sempra Communications would be required to cooperate with Caltrans, county agencies and local incorporated cities before construction begins.

ROADWAY OPERATIONS

The operation of a local roadway network is commonly measured and described using a grading system called Level of Service (LOS). The LOS grading system qualitatively characterizes traffic conditions associated with varying levels of vehicle traffic, ranging from LOS A (indicating free-flow traffic conditions with little or no delay experienced by motorists) to LOS F (indicating congested conditions where traffic flows exceed design capacity and result in long queues and delays). This LOS grading system applies to roadway/freeway segments and intersections. For most local jurisdictions (local City and County roadways and intersections) LOS A, B, and C are generally considered satisfactory service levels, while the influence of congestion becomes more noticeable (though still considered acceptable) at LOS D. LOS E and F are generally considered to be unacceptable. For roadways and intersections with regional significance, or those facilities that fall within the jurisdictions of regional CMAs, LOS A through E are generally considered satisfactory service levels. LOS F is generally considered to be unacceptable for regional facilities (unless they are currently operating at that level). **Table 4.12-1** provides descriptions of each service level.

PROJECT AREA TRANSPORTATION NETWORKS

The following describes the transportation networks and responsible agencies by county, starting in the northern California metropolitan areas, to the metropolitan areas of southern California.

Marin County

The County of Marin Public Works Department is responsible for the planning and development of the majority of the regional transportation facilities in Marin County. Caltrans is responsible for the maintenance of state highway facilities in the County such as U.S. Highway 101 (US 101) and State Route 1 (Highway 1). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintains roadway segments of the local transportation facilities.

TABLE 4.12-1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Description
A	Describes completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.
B	Also indicates free-flow, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.
C	The influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. On multilane highways with a free-flow speed above 50 miles per hour (mph), the travel speeds reduce somewhat. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant disruption.
D	The ability to maneuver is severely restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	Represents operations at or near capacity, an unstable level. The densities vary, depending on the free-flow speed. Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues to form and service to deteriorate to LOS F.
F	Represents forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points – and on sections immediately downstream – appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages. Note that the term LOS F may be used to characterize both the point of the breakdown and the operating condition within the queue.

SOURCE: Transportation Research Board, *Highway Capacity Manual (HCM2000)*, 2000.

US 101 is the primary freeway facility in Marin County that provides regional access to Sonoma County to the north; San Francisco and the Peninsula to the south, the East Bay to the east, via Interstate 580 (I-580); and the coastal areas, via Highway 1. Other major regional routes and their respective jurisdictions are:

- Interstate 580 (I-580) – Caltrans
- State Route 1 (Highway 1) – Caltrans and County of Marin
- State Route 37 (SR 37) – Caltrans and City of Novato
- State Route 131 (SR 131) – Caltrans, County of Marin, and City of Tiburon

- Sir Francis Drake Boulevard – Cities of San Anselmo, Ross, and Larkspur; County of Marin

Major regional transit providers that operate facilities within Marin County include: Golden Gate Transit (regional bus service) and the Blue and Gold Fleet Ferry Service (water transportation).

San Francisco County

The County and City of San Francisco contain the same jurisdictional boundaries in terms of regional and local transportation facilities. The (County and City) Parking and Traffic Commission and the Metropolitan Transportation Commission (MTC) are responsible for the planning and development of the majority of transportation facilities in San Francisco. Caltrans is responsible for the maintenance of state highway facilities in San Francisco such as U.S. Highway 101 (US 101), State Route 1 (Highway 1 and 19th Avenue), Interstate 80 (I-80), and Interstate 280 (I-280). These state facilities are the primary north-south freeways and arterials that provide access to Marin County to the north (US 101 and Highway 1); the Peninsula and South Bay (US 101, I-280 and Highway 1), and the East Bay (I-80). Other major regional routes in San Francisco include:

- Van Ness Avenue (US 101)
- Lombard Street (US 101)
- 19th Avenue and Presidio Boulevard (Highway 1)
- Geary Boulevard
- Fell Street
- Oak Street
- Market Street
- Mission Street

Major regional transit providers that operate facilities in San Francisco include: San Francisco Municipal Railway (MUNI, intercity bus and light rail services); Bay Area Rapid Transit (BART) regional light rail service; Caltrain (regional commuter rail transit); Golden Gate Transit and San Mateo Transit (SamTrans), (inter-county bus transit service); and the Blue and Gold Fleet Ferry and the Oakland/Alameda Ferry Service (regional water transportation).

Alameda County

The Alameda County Congestion Management Agency (ACCMA) administers the Congestion Management Program (CMP) for the cities within the County. The ACCMA CMP network is comprised of all State Highways, principal arterials within the County, and transit corridors within the Metropolitan Transportation System (MTS). Alameda County's LOS standard for the CMP network is LOS E, except where existing facilities are currently operating at LOS F. Certain segments of the following CMP facilities (i.e., freeways and regional routes within Alameda County) have been identified in the 1999 CMP as operating at LOS F:

- Interstate 80 (I-80) through portions of Berkeley, Emeryville, and Oakland
- State Route 24 (SR 24) through Oakland

- Interstate 580 (I-580) through Oakland
- Interstate 980 (I-980) through Oakland
- State Route 238 (SR 238) through Hayward
- Interstate 880 (I-880) through San Leandro, Hayward, and Fremont
- State Route 92 (SR 92) through Hayward
- State Route 13 (SR 13, Ashby Avenue) through Berkeley
- State Route 260 (SR 260) through Oakland and Alameda
- Hesperian Boulevard through Hayward and San Leandro
- State Route 112 (SR 112, Davis Street) through San Leandro
- Decoto Road through Union City
- State Route 84 (SR 84, Fremont Boulevard) through Fremont
- Mowry Avenue through Fremont

The 1999 Alameda County CMP provides a detailed list of these segments indicating the specific segment lengths and direction of traffic, which is currently operating at LOS F.

Major regional transit providers that operate facilities within Alameda County include: AC Transit (regional bus service); BART (light rail); and the Oakland/Alameda Ferry Service (water transportation).

Contra Costa County

The Contra Costa Transportation Authority (CCTA) administers the CMP for the regional travel facilities in Contra Costa County. The CMP road network includes, at a minimum, all State highways and principal arterials. Because of its importance as part of the county's transportation system, BART is also included in the CMP network. The 2000 Update to the *Countywide Comprehensive Transportation Plan* and updates to the Action Plans for Routes of Regional Significance have recently been completed.

The Contra Costa CMP establishes two types of LOS standards: standards for freeway segments and standards for CMP Monitoring Intersections on surface roadways. Freeway segments were set at the LOS E standard unless any of the available data indicated LOS F. The standard for intersections operating at LOS F in 1991 was set at LOS F, while the standard at all remaining intersections was set at LOS E. Certain segments of the following CMP facilities (i.e., freeways and regional routes within Contra Costa County) have been identified in the 2001 CMP Update as operating at LOS F:

- Interstate 80 (I-80) including the Carquinez Bridge
- Interstate 680 (I-680) including the Benicia Bridge
- State Route 4 (SR 4) from I-80 to Cummings Skyway, and SR 242 to SR 160
- State Route 24 (SR 24) from Alameda County to I-680 and SR 4
- Rumrill Boulevard in San Pablo
- Barrett Avenue in Richmond
- Bear Creek Road in Orinda and Contra Costa County
- Taylor Boulevard in Pleasant Hill
- Monument Boulevard in Pleasant Hill

- Geary Road in Walnut Creek
- Alhambra Avenue in Pleasant Hill
- North Main Street in Walnut Creek
- Oak Grove Road in Concord
- Bancroft Road in Concord
- Alberta in Concord
- Cowell Road in Concord
- Walnut Boulevard in Walnut Creek

Major regional transit providers that operate facilities within Contra Costa County include: Central Contra Costa Transit Authority (CCCTA); WestCAT (bus service for west Contra Costa County); BART (light rail); and the Vallejo Transit Ferry Service (water transportation).

San Mateo County

The City/County Association of Governments of San Mateo County (C/CAG) administers the CMP for the regional travel facilities in San Mateo County. The CMP roadway network includes, at a minimum, all State highways and principal arterials. C/CAG has established different level of service criteria for each of its CMP facilities, ranging from LOS B to LOS F. By adopting LOS standards based on geographic differences, C/CAG utilizes the CMP process to prevent future congestion levels in San Mateo County from getting worse than currently anticipated. The CMP network's LOS criteria are listed in the CMP under Table 3-2, "Level of Service Standards for CMP Roadway Segments." Certain segments of the following CMP facilities (i.e., freeways and regional routes within San Mateo County) have been identified in the 1997 CMP as operating at LOS F:

- State Route 35 (SR 35), Sneath Lane to I-280
- State Route 84 (SR 84), University Avenue to Alameda County line
- U.S. Highway 101 (US 101), Peninsula Avenue to SR 92
- U.S. Highway 101 (US 101), Whipple Avenue to Santa Clara County line
- Interstate 380 (I-380), I-280 to US 101
- The intersections of Bayfront Expressway (SR 84) with University Avenue (SR 109), Willow Road (SR 114), and Marsh Road
- The intersection of SR 92 and Main Street

Major regional transit providers that operate facilities within San Mateo County include: SamTrans (local and regional bus service), and Caltrain (commuter train service).

Santa Clara County

The Santa Clara Valley Transportation Authority (VTA) administers the CMP for the cities within the County. The VTA's CMP network is comprised of all State Highways and principal arterials within the County. The CMP roadways are defined with the minimum characteristics: 1) State highway; 2) six-lane facility; or 3) non-residential arterial with average daily traffic of 30,000 vehicles per day. Santa Clara County's LOS standard for the CMP network is LOS E, except where existing facilities are currently operating at LOS F. Certain segments of the

following CMP facilities (i.e., freeways and regional routes within Santa Clara County) have been identified in the 1997 CMP as operating at LOS F:

- San Tomas Expressway/Campbell Avenue – Campbell
- Montague Expressway at Capitol Avenue, Milpitas Boulevard, Trade Zone Boulevard/McCandless, and McCarthy Boulevard/O'Toole Avenue – Milpitas and Santa Clara County
- Page Mill-Oregon Expressway/Foothill Expressway – Palo Alto
- Capitol Expressway/Story Road – San Jose
- Guadalupe Parkway/Taylor – San Jose
- Montague Expressway/First Street – San Jose
- Trimble Road/De la Cruz Boulevard – San Jose
- Central Expressway at De la Cruz Boulevard and Lafayette Street – Santa Clara.
- San Tomas Expressway at El Camino Real (SR 82), Saratoga Avenue, and Stevens Creek Boulevard – Santa Clara and San Jose

Major regional transit providers that operate facilities within Santa Clara County include: VTA Transit (regional bus service) and Caltrain (commuter rail).

Santa Cruz County

Santa Cruz County is the smallest county in the state and largely rural in nature. The maintenance of the County's transportation network is done by the County of Santa Cruz Public Works Department, while the planning and development of the roadway network is done by the Santa Cruz County Regional Transportation Commission (SCCRTC). Three state highways under the jurisdiction of Caltrans traverse the County in a north-south direction. The major transportation network in Santa Cruz County consists of the following:

- State Route 1 (Highway 1), with access coastal San Mateo County and Monterey County
- State Route 9 (Highway 9), with access to the Santa Cruz mountains
- State Route 17 (Highway 17), with access to the Silicon Valley

According to information provided by the SCCRTC (based on 1998 LOS data), none of the primary roadway facilities in the County are operating at LOS F.

Major transit providers that operate facilities within Santa Cruz County include the Santa Cruz Metropolitan Transit District (Metro, regional bus service), and Amtrak (regional rail service).

Sacramento County

The Sacramento Transportation Authority (STA) is responsible for the planning and development of the majority of the regional transportation facilities in Sacramento County. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstates 5 and 80 (I-5 and I-80), U.S. Highway 50 (US 50) and State Route 99 (SR 99). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintains roadway segments of the local transportation facilities.

I-5 and SR 99 are the primary north-south freeway facilities in Sacramento County that provide regional access to Yolo, Lake, Colusa and Sutter Counties to the north; and the Cities of Stockton, Modesto and Fresno to the south. I-80 provides primary east-west access from Sacramento County to Nevada City and Lake Tahoe to the east, and the San Francisco Bay Area to the west. Other major regional routes and their respective jurisdictions are:

- State Route 160 (SR 160, 12th Street, 15th Street, 16th Street, and Freeport Boulevard) – Caltrans, Sacramento County and City of Sacramento
- State Route 84 (SR 84, Jefferson Boulevard) – Caltrans, Sacramento County and City of West Sacramento
- Stockton Boulevard – City of Sacramento
- Folsom Boulevard – City of Sacramento

The Sacramento Regional Transit District (RT) is the major regional transit provider in Sacramento County. RT operates 77 bus routes and 20.6 miles of light rail covering a 418 square-mile service area.

Fresno County

The Council of Fresno County Governments is responsible for the planning and development of the majority of the regional transportation facilities in Fresno County. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstate 5 (I-5), State Route 99 (SR 99), and State Route 41 (SR 41). Maintenance of local roadway segments is generally done by local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas).

SR 99 and SR 41 are the primary freeway facilities in the metropolitan Fresno areas. SR 99 and I-5 provide north-south access to Madera and Merced Counties to the north, and Tulare, Kings and Kern Counties to the south. SR 41 also provides north-south access to Madera County and the Sierra Nevada mountains to the north, and Kings County to the south. Other major regional routes and their respective jurisdictions are:

- State Route 168 (SR 168) – Fresno County and Clovis
- State Route 180 (SR 180) – Fresno County and Cities of Mendota, Kerman, Fresno, and Sanger
- State Route 198 (SR 198) – Fresno County and Cities of Coalinga and Huron
- Shaw Boulevard – City of Fresno
- Ashlan Boulevard – City of Fresno

Major regional transit providers that operate facilities within Fresno County include the Fresno County Rural Transit Agency (FCRTA) and Fresno Area Express (FAX). Both of these agencies operate fixed bus route service throughout Fresno County.

Los Angeles County

The Los Angeles County Metropolitan Transportation Authority (MTA) is responsible for the planning and development of the majority of the regional transportation facilities in Los Angeles

County. The MTA also administers the Los Angeles County CMP and its monitoring program. Caltrans is responsible for the maintenance of state highway facilities in the County such as U.S. Highway 101 (US 101), Interstate 5 (I-5), and Interstate 10 (I-10). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintain roadway segments of the regional and local transportation facilities.

Among its 89 incorporated cities, as well as its unincorporated areas, Los Angeles County has several key regional and local transportation networks. Some of the key regional transportation facilities, and the jurisdictions they cross, are listed below:

- U.S. Highway 101 (US 101) – City of Los Angeles
- Interstate 5 (I-5) – Unincorporated County of Los Angeles; and Cities of Santa Clarita, San Fernando, Burbank, Commerce, Pico Rivera, Downey, Norwalk, and La Mirada
- Interstate 405 (I-405) – Cities of Los Angeles, Culver City, Inglewood, Hawthorne, Lawndale, Torrance, Carson, Long Beach, Lakewood, and Long Beach
- Interstate 10 (I-10) – Cities of Santa Monica, Los Angeles, Alhambra, Monterey Park, Rosemead, El Monte, West Covina, Covina, and Pomona
- Interstate 210 (I-210) – Unincorporated County of Los Angeles; and Cities of La Canada Flintridge, Pasadena, Arcadia, Monrovia, Duarte, Azusa, Glendora, and San Dimas
- Interstate/State Route 110 (I-110/SR 110) – Cities of Los Angeles and Carson
- Interstate 710 (I-710) – Cities of Long Beach, Carson, Compton, Paramount, South Gate, Cudahy, Bell Gardens, Bell, Maywood, Vernon, Commerce, and Monterey Park
- Interstate 605 (I-605) – Unincorporated County of Los Angeles; and Cities of Los Alamitos, Lakewood, Hawaiian Gardens, Cerritos, Artesia, Bellflower, Norwalk, Downey, Santa Fe Springs, Pico Rivera, Whittier, El Monte, Industry, and Duarte
- Interstate 105 (I-105) – Cities of Los Angeles, El Segundo, Hawthorne, Inglewood, South Gate, Compton, Lynwood, Paramount, Downey, and Bellflower

Major regional transit providers that operate facilities within Los Angeles County include: the MTA (regional bus and light rail service), Southern California Regional Rail Authority (SCRRA) (Metrolink commuter rail service), and Amtrak (regional and interstate passenger rail service). Also, many of the local jurisdictions within the county operate local and intercity bus service (e.g., Foothill Transit Agency, Long Beach Transit, Santa Monica Municipal Bus Lines, Whittier Transit, etc.).

Orange County

The Orange County Transportation Authority (OCTA) is responsible for the planning and development of the majority of the regional transportation facilities in Orange County. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstates 5 and 405 (I-5 and I-405), and State Routes 1 and 73 (Pacific Coast Highway – PCH, and SR 73 – San Joaquin Hills Toll Road). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintain roadway segments of the local transportation facilities.

I-5, I-405 and PCH are the primary north-south transportation facilities in Orange County that provide regional access to Los Angeles and Ventura Counties to the north; and San Diego County

to the south. SR-91, SR-22, and SR-55 provide primary east-west access from Orange County to Riverside and San Bernardino Counties to the east.

In addition to the regional State highways and freeways, OCTA has developed a “Smart Street” network for four major arterials in the County. The Smart Street concept seeks to improve roadway traffic capacity and smooth traffic flow through measures such as traffic signal synchronization, bus turnouts, intersection improvements and addition of travel lanes by removing on-street parking and consolidating driveways. The Smart Street concept is cost-effective since many of these improvements can be made within existing highway rights-of-way. Orange County's four Smart Streets are:

- Beach Boulevard (SR 39)
- Katella Avenue
- Moulton Parkway (also known as Edinger Avenue, Irvine Center Drive and Street of the Golden Lantern)
- Imperial Highway (SR 90)

Major regional transit providers that operate facilities within Orange County include: OCTA (regional bus service), SCRRA (Metrolink commuter rail service), and Amtrak (regional and interstate passenger rail service).

Riverside County

The Riverside County Transportation Commission (RCTC) is responsible for the planning and development of the majority of the regional transportation facilities in Riverside County. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstates 15 and 215 (I-15 and I-215); and State Routes 91, 60, 74, and 215 (SR 91, 60, 74, and 215). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintain roadway segments of the local transportation facilities.

I-15, SR 91 and SR 215 are the primary north-south freeway facilities in Riverside County that provide regional access to San Bernardino County to the north; and Orange and San Diego Counties to the south. SR-60 provides primary east-west access to Los Angeles County to the west, and San Bernardino County to the east. SR 74 also provides major commute access to Orange County via Ortega Highway.

The Riverside Transit Agency (RTA) is the major regional transit provider in western Riverside County.

San Bernardino County

The San Bernardino Association of Governments (SANBAG) is responsible for the planning and development of the majority of the regional transportation facilities in San Bernardino County. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstates 10, 15 and 40 (I-10, I-15 and I-40); and State Routes 18, 30, 38, 58, and 247 (SR 18,

30, 38, 58, and 247). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintain roadway segments of the local transportation facilities.

I-15 and SR 215 are the primary north-south freeway facilities in San Bernardino County that provide regional access to the City of Barstow and Las Vegas to the north; and Riverside, Orange and San Diego Counties to the south. I-10 provides primary east-west access to Los Angeles County to the west, and the City of Palm Springs to the east. I-40 provides primary east-west access to the Nevada and Arizona state borders.

Due to large geographical service area, and limited roadway facilities connecting them, there are several local transit providers in San Bernardino County. The mainly bus service providers include: Barstow Area Transit, Mountain Area Regional Transit Authority, Omnitrans, and the Victor Valley Transit Authority. Amtrak also provides regional passenger rail service to and from San Bernardino County.

San Diego County

The San Diego Association of Governments (SANDAG) is responsible for the planning and development of the majority of the regional transportation facilities in San Diego County, as well as the CMP. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstates 5, 8, 15 and 805 (I-5, I-8, I-15 and I-805); and State Routes 52, 54, 56, 76, 78, 125 and 905 (SR 52, 54, 56, 76, 78, 125 and 905). All State highways and the following arterials (non-State highways) are included in the County's CMP network:

- Manchester Avenue/El Camino Real (I-5 to SR 76-Mission Avenue)
- Palomar Airport Road/San Marcos Boulevard (I-5 to SR 78)
- Olivenhain Road/Rancho Santa Fe Road (El Camino Real to SR 78)
- Centre City Parkway (I-15 north to I-15 south)
- Scripps Poway Parkway (I-15 to SR 67)
- La Jolla Village Drive/Miramar Road (I-5 to I-15)
- Sea World Drive/Friars Road/Mission Gorge Road/Woodside Avenue (I-5 to SR 67)
- Fletcher Parkway/Broadway/E. Main Street/Greenfield Drive (I-8 west to I-8 east)
- Nimitz Boulevard/North Harbor Drive/Grape & Hawthorne Streets/Pacific Highway/Harbor Drive (I-8 to I-5)
- SR 54 & Sweetwater Road-Interim SR 125 (I-805 to Broadway)
- Otay Mesa Road-Interim SR 905 (SR 905 west to SR 905 east)

Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintain roadway segments of the local transportation facilities.

According to the current CMP (1998), the following CMP freeway segments are experiencing LOS F conditions in either or both the peak commute hours:

- Interstate 5 - Tamarack Avenue to Cannon Road
  Manchester Avenue to I-805

	Balboa Avenue to SR-54
• Interstate 8 -	Nimitz Boulevard to Mission Bay Drive
	Hotel Circle Drive North to College Avenue
• Interstate/SR 15 -	Via Rancho Parkway to Carmel Mountain Road
	Adams Avenue to Wightman Valley
• State Route 52 -	Regents Road to I-805
	Convoy Street to Santo Road
• State Route 54 -	Willow Glen Drive to SR 94/Campo Road
• State Route 67 -	Highland Valley Road to Mapleview Valley
• State Route 75 -	I-5 to Glorietta Boulevard
	Pomona Avenue to Orange Avenue/SR 75
• State Route 76 -	El Camino Real to North Santa Fe Avenue
• State Route 78 -	El Camino Real to Thunder Drive
	Fig Valley to Ash Valley
• State Route 94 -	SR 94 off-ramp to Spring Street/SR 125
	Jamacha Boulevard to Jamacha Road/SR 54
• State Route 163 -	I-15 to SR 52
	Genessee Avenue to Friars Road
	University Avenue to I-5
• State Route 209 -	Lowell Boulevard to North Harbor Drive
• State Route 274 -	Clairemont Drive to Convoy Valley
• Interstate 805 -	Miramar Road to SR-52
	Kearny Villa Road to Friars Road
	Camino Del Rio South to Adams Avenue
	Market Street to Ocean View Boulevard

In San Diego County, buses, trains and trolleys criss-cross the region, making travel accessible and economical for commuters. Transit services in the metropolitan San Diego area are provided by Chula Vista Transit, National City Transit, San Diego County Transit, San Diego Transit, and San Diego Trolley. Overall coordination of these services is the responsibility of the Metropolitan Transit Development Board (MTDB). Together, these organizations make up the Metropolitan Transit System (MTS). The North San Diego County Transit District (NCTD) operates the Coaster commuter train and North County bus routes.

Imperial County

The Imperial County Public Works Department and the Imperial County Local Transportation Authority are jointly responsible for the planning and development of the majority of the regional transportation facilities in Imperial County. Caltrans is responsible for the maintenance of state highway facilities in the County such as Interstate 8; and State Routes 78, 111, and 115 (I-8; and SR 78, 111, and 115). Local jurisdictions (i.e., incorporated cities), or the County (in unincorporated areas), generally maintain roadway segments of the local transportation facilities.

SR 111 and SR 115 are the primary north-south freeway facilities in Imperial County that provide regional access to San Bernardino and Riverside Counties to the north, via I-10. I-8 provides primary east-west access to San Diego County to the west, and the State of Arizona to the east.

Imperial County Transit System provides transit service to this mainly agrarian county. It connects with Greyhound for interregional trips.

4.12.2 REGULATIONS, APPROVALS, AND PERMITS APPLICABLE TO TRANSPORTATION

The California Department of Transportation requires an encroachment permit to perform construction activities in the state highway rights-of-way. Some of the affected local agencies may require local encroachment permits or conditional-use permits for proposed activities within public road rights-of-way. Encroachment permit requirements vary among agencies. As conditions of encroachment permits, measures are required to be implemented for transportation and traffic control.

4.12.3 IMPACTS AND MITIGATION MEASURES

Assessment of impacts related to installation of telecommunications infrastructure involved evaluating the effects of subsequent activities on traffic and circulation resulting from increases in traffic, loss of travel lanes and/or parking areas, disruptions to public transit, and potential safety effects associated with construction. Construction characteristics, including proposed manpower and equipment, location of construction and rate of construction were determined on the basis of information provided by Sempra Communications. Conservative assumptions were used to determine the potential number of vehicles that could be required for facilities installation.

SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines states that a project would normally result in an impact to transportation and traffic 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 a change in air traffic patterns, including either an increase in traffic levels or a change in location that results 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.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Construction Vehicle Trip Generation

As discussed in Chapter 3, Sempra Communications proposes development of telecommunications infrastructure by underground installation of fiber optic cable facilities or aerial installation with existing electric distribution or transmission lines, and the potential construction of ancillary facilities such as regenerator / OP-AMP stations. Underground installation of fiber optic cable facilities would be accomplished using open trenching, plow and trench installation, or directional boring techniques, and would cause surface disturbance for a short period during installation, as described in Chapter 3, Project Description. Aerial installation would be accomplished by attaching suspension clamps on poles and stringing the cable with the use of bucket trucks and cable reel trucks or cable trailers, or OPGW stringing techniques on transmission towers.

Traffic-generating construction activities related to facilities installation would consist of the daily arrival and departure of construction workers to each work site; trucks hauling equipment and materials to the work site; and the hauling of excavated spoils from, and import of new fill to, each work site. The following identifies examples of the number of construction workers expected with potential types of construction spreads (i.e., each construction site along the alignment):

Street Trench	10-person crew
Cable Pulling	8-person crew
Directional Drilling	8-person crew

Based on these estimated crew sizes, and assuming some overlap in construction activities at each work site, construction worker trips traveling to and from each work site are not anticipated to exceed 20 round trips (40 one-way trips) per day.

As discussed in Chapter 3, the trench size for open-cut installation within paved roadways would be approximately 1.5 feet wide by two to four feet deep. It is expected that open trench construction within paved roadways would occur at the following average rates per workday, depending on location and conditions: metropolitan streets - 85 linear feet per day; and industrial streets and residential streets- 200 linear feet per day. Using the above trench size and construction rate estimates, and assuming fifty percent backfilling of soil, at each construction spread, it is estimated that up to 30 cubic yards (CY) of trench spoils would be hauled off-site daily, and a similar volume of new fill would be imported daily. Using an average haul load of 10 CY per truck, and assuming no backhauling, this would amount to up to 6 truck haul round trips (12 one-way trips) generated per work day. Accounting for the delivery of conduit, cable

and other construction components (which would be shipped on demand to the construction site throughout the construction period), the total number of off-site construction truck trips would be approximately 12 round trips (24 one-way trips) per work day.

The rate of construction for dirt trenching would be faster than for paved roadways. Additionally, since the potential for re-use of the native soil would be greater for dirt trenching than for trenching in streets, off-site hauling of soil in these locations would be less than that expected for paved roadways. Off-site vehicle trips generated at locations where special construction techniques are proposed (i.e., directional drilling) for crossing major roads, creeks, or other conditions where surface disturbance may need to be minimized, would also be less than that generated by trenching within paved roadways.

Impact TRA-1: Installation of fiber optic cable facilities within or across streets would reduce the number of, or the available width of, travel lanes on roads, resulting in temporary disruption of traffic flows and increases in traffic congestion. (Less than Significant)

Subsequent activities could be located within and/or across, a number of roadways. These actions could temporarily disrupt existing transportation and circulation patterns in the vicinity. Impacts would include direct disruption of traffic flows and street operations. Lane blockages or street closures during construction would result in a reduction in travel lanes and curb parking. Construction operations related to facilities installation within and/or across high traffic volume arterials could significantly impact traffic flow and operations at these locations.

The temporary construction easement width that would be required for installation of fiber optic cable facilities in public roadways would be approximately 12 feet. As specified under Construction Vehicle Trip Generation, above, open trench construction within paved roadways would be expected to proceed at a rate of about 85 linear feet per day for metropolitan streets, and 200 linear feet per day for residential and industrial streets. Consequently, impacts would be relatively brief at any one location along the cable alignment, in most cases less than one work week.

As necessary, special construction techniques (e.g., directional boring) are proposed as needed to install facilities beneath freeways, major arterials or intersections, and at-grade railroad crossings. Sempra Communications would obtain the necessary local and state road encroachment permits, railroad encroachment permits, and flight plan approvals (for potential helicopter use during construction), prior to construction and would comply with the applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. Also, it should be noted that roadway encroachment permits would be required with the use of helicopters for aerial installations over freeways and roadways since this would have the potential to stop traffic flow for safety reasons. The traffic control plan could include the following requirements:

- Identify all roadway locations where special construction techniques (e.g., directional drilling or night construction) would be used to minimize impacts to traffic flow.
- Develop circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Schedule truck trips outside of peak morning and evening commute hours.
- Limit lane closures during peak hours to the extent possible.
- Use haul routes minimizing truck traffic on local roadways to the extent possible.
- Include detours for bicycles and pedestrians in all areas potentially affected by project construction.
- Install traffic control devices as specified in the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Develop, and implement access plans for highly sensitive land uses such as police and fire stations, transit stations, hospitals and schools. The access plans would be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, ask affected jurisdictions to identify detours, which will then be posted by the contractor. Notify in advance the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures.
- Store construction materials only in designated areas.
- Coordinate with local transit agencies for temporary relocation of routes or bus stops in works zones, as necessary

Because Sempra Communications would obtain and comply with local and state road encroachment permits, and railroad encroachment permits, this would be a less than significant impact.

Mitigation Measure: No mitigation is required.

Impact TRA-2: Construction related to fiber optic cable facility installation could result in short-term increases in vehicle trips by vehicular construction activities and construction workers. (Less than Significant)

Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions or level of service on any project area roadways. The

primary off-site impacts from the movement of construction trucks would include short-term and intermittent lessening of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles.

As discussed under Construction Vehicle Trip Generation, above, installation of fiber optic cable facilities could generate up to 20 off-site construction worker vehicle round-trips (40 one-way trips) and 12 off-site truck round trips (240 one-way trips) per day per construction spread. These project-generated trips would not be substantial relative to background traffic conditions on all arterials and freeways, and would fall within the daily fluctuations of traffic for these roadways. Therefore, this short-term increase in vehicle trips would not significantly affect level of service and traffic flow on roadways. The traffic generated by construction activities would be mostly felt on the minor roadways serving the construction sites.

Level of service standards for roadways that are part of county CMP networks are intended to regulate long-term traffic increases from operation of new development, and do not apply to temporary construction projects. As such, the proposed project would not exceed level-of-service standards established by the applicable CMA for designated CMP roadways.

It is possible that multiple construction spreads could occur for implementation of subsequent activities. However, multiple trenching construction spreads, if they were to occur, are expected to be an average of five miles apart, and cable pulling spreads would be at an average of 40 miles apart. Thus, trucks and other vehicles would typically gain access to construction sites from different sets of roadways and intersections. Since subsequent activities would likely be distributed throughout the metropolitan areas in the identified counties, potential combined traffic effects of the individual construction operations resulting from this project would be less than significant.

Proposed hours of construction are Monday through Saturday, 7:00 a.m. to 7:00 p.m. unless otherwise authorized by the governing authority. Most project-related hauling and deliveries would be dispersed throughout the day, thus lessening the effect on peak-hour traffic. Construction-related truck traffic occurring weekdays during the hours of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. would coincide with peak-period traffic, and therefore, would have the greatest potential to impede traffic flow. Construction-related truck traffic operating outside of these specified ours would only occur if previously authorized by the governing authority.

As specified above, Sempra Communications will obtain all necessary local and state road encroachment permits, and railroad encroachment permits, prior to construction and would comply with all the applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits will require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. Specific requirements that may be included in the traffic control plan are identified above in Impact TRA-1. For these reasons potential impacts associated with temporary increases in construction traffic would be mitigated to a less than significant level.

Mitigation Measure: No mitigation is required.

Impact TRA-3. OPGW installations could utilize helicopters during construction which may temporarily 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. (Less than Significant)

As discussed in Chapter 3, Project Description, the helicopters may be utilized for OPGW installations which may temporarily result in a change in local air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The use of helicopters for OPGW installations over roadways would pose a significant safety hazard to motorists below. Therefore, it is likely that temporary freeway and roadway closures would be necessary.

As specified under above, Sempra Communications would obtain all necessary local and state road encroachment permits and flight plan approvals prior to construction and would comply with all the applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction, including compliance with roadside safety protocols, so as to reduce the risk of accident. Specific requirements that may be included in the traffic control plan are identified above under **Impact TRA-1**. For these reasons potential impacts associated with temporary disruptions and/or closures on roadways would be mitigated to a less than significant level.

Mitigation Measure: No mitigation is required.

Impact TRA-4: Installation of fiber optic facilities within roadways and railroad rights of way could temporarily increase the potential for accidents. (Less than Significant)

Heavy equipment operating adjacent to or within a railroad or road right-of-way could increase the risk of accidents. Construction-generated trucks on project area roadways would interact with other vehicles. Potential conflicts also could occur between construction traffic and bicyclists and pedestrians, particularly in the urban areas and residential neighborhoods.

As specified above, Sempra Communications would obtain all necessary local and state road encroachment permits, and railroad encroachment permits, prior to construction and would comply with all the applicable conditions of approval. The railroads require specific safety training of construction crews before they are permitted to work within the railroad rights-of-way. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction, including compliance with roadside safety protocols, so as to

reduce the risk of accident. Specific requirements that may be included in the traffic control plan are identified above under **Impact TRA-1**. For these reasons potential for accidents would be mitigated to a less than significant level.

Mitigation Measure: No mitigation is required.

Impact TRA-5: Installation of fiber optic facilities within or across streets could affect emergency access. (Less than Significant)

As discussed in **Impact TRA-2**, the proposed project could have temporary effects on traffic flow, particularly with subsequent activities as proposed within road right of ways. Fiber optic cable facilities within or across streets and temporary reduction in travel lanes could result in delays for emergency vehicle access in the vicinity of the work sites.

As specified under above, Sempra Communications would obtain all necessary local and state road encroachment permits, and railroad encroachment permits, prior to construction and would comply with all the applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. The traffic control plan could require the construction contractor to establish methods for maintaining traffic flow in the project vicinity and minimizing disruption to emergency vehicle access to land uses along the alignment. Specific requirements that may be included in the traffic control plan are identified above under **Impact TRA-1**. For these reasons, potential impacts associated with temporary effects on emergency access would be mitigated to a less than significant level.

Mitigation Measure: No mitigation is required.

Impact TRA-6: Construction related to installation of fiber optic facilities could generate a temporary demand for parking spaces for construction worker vehicles; in addition, construction operations could temporarily displace existing on-street parking on a number of streets. (Less than Significant)

Subsequent activities may create limited new, temporary parking demand for construction workers and construction vehicles as crews move through the project vicinity. As discussed in **Impact TRA-1**, proposed construction methods would not generate a substantial number of construction workers at any one location during installation activities; therefore, the amount of parking required would not be significant. Construction operations could also temporarily displace existing on-street parking on a number of streets. However, given the proposed rate of construction during facilities installation, impacts to on-street impacts would be relatively brief at any one location throughout the project area.

As specified above, Sempra Communications would obtain all necessary local and state road encroachment permits, and railroad encroachment permits, prior to construction and would comply with all the applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. The traffic control plan could require the construction contractor to establish methods for minimizing construction effects on parking. Specific requirements that may be included in the traffic control plan are identified above under **Impact TRA-1**. For these reasons, potential impacts associated with potential temporary displacement of on-street parking would be mitigated to a less than significant level.

Mitigation Measure: No mitigation is required

Impact TRA-7: Installation of fiber optic facilities could temporarily disrupt bus service throughout the project area. (Less than Significant)

The proposed project will have no lasting impact on demand for alternative transportation or on alternative transportation facilities. However, installation of fiber optic facilities could disrupt access to bus stops and park and ride lots along the alignments, and slow bus movements. Bus routes on streets may need to be temporarily detoured, and bus stops temporarily relocated.

As specified under above, Sempra Communications would obtain all necessary local and state road encroachment permits prior to construction and would comply with all the applicable conditions of approval. Therefore, potential impacts associated with temporary disruptions to transit service would be mitigated to a less than significant level.

Mitigation Measure: No mitigation is required.

REFERENCES – Transportation and Traffic

Alameda County Congestion Management Agency, *Congestion Management Program*, 1999.

Contra Costa Transportation Authority, *Growth Management Program*, 1999.

Fresno County Governments, Council of, website, 2002.

Los Angeles County Metropolitan Transportation Authority, *Congestion Management Program*, 1999.

Orange County Transportation Authority, website for 2002.

Riverside County Transportation Commission, website for 2002.

Sacramento Transportation Authority website, 2002.

San Diego Association of Governments, *Congestion Management Program*, 2000.

San Mateo County, City/County Association of Governments, *Congestion Management Program*, 1999.

Santa Clara Valley Transportation Authority, *Congestion Management Program*, 1999.

Transportation Research Board, *Highway Capacity Manual* (HCM2000), 2000.

4.13 UTILITIES AND SERVICE SYSTEMS

4.13.1 SETTING

Public services and utilities such as electricity, domestic water, sanitary and stormwater sewers, solid waste, communications and natural gas are typically provided to urbanized areas by a variety of local purveyors (e.g., cities, counties, special districts, water agencies, and power companies). The availability of such services depends on the level of urbanization in a given area. Certain utilities such as sanitary and stormwater sewers, and natural gas are usually provided via underground pipelines or conduits.

Public roadway rights-of-way are commonly used as utility corridors. Subsequent actions could coincide with public roadway rights-of-way that contain some or all of the following underground utilities: water, sewer, storm drain, gas, electric, and other fiber optic lines.

AVAILABILITY OF UTILITIES AND SERVICE SYSTEMS

The proposed project would involve installation of fiber optic facilities including the installation of regenerator / OP-AMP stations. The only project demand on public utilities would be the electric and water facility requirement to support these proposed regenerator / OP-AMP stations. Depending on the geographical location of the proposed station, these services would be provided by one or more of the following:

- Pacific Gas and Electric Company's (PG&E) distribution system[1] provides to consumers in the Bay Area including Alameda, Marin, Contra Costa, Fresno, San Francisco, San Mateo, Santa Clara, and Santa Cruz Counties.

- Sacramento Municipal Utility District (SMUD) distribution system[2] provides electricity to consumers in the Sacramento Area and the Sacramento County Department of Water Resources provides water, sewer, and sanitation services.

- Southern California Edison's distribution system provides electricity to parts of Santa Barbara County, Los Angeles County, San Bernardino County, Orange County, and Riverside County. The Los Angeles Department of Water and Power and municipal utilities provides electricity in the City of Los Angeles. The cities of Burbank, Glendale, and Pasadena each have their own utility providers (Burbank Electric Company, Glendale Public Works, and Pasadena Water and Power respectively).

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1 Recent deregulation of the electric utility industry allows California consumers to purchase electricity from PG&E and other electricity suppliers. Electricity from all suppliers is delivered to consumers via PG&E's distribution system.

2 Recent deregulation of the electric utility industry allows California consumers to purchase electricity from SMUD and other electricity suppliers. Electricity from all suppliers is delivered to consumers via SMUD's distribution system.

- San Diego Gas and Electric's distribution system provides to consumers in the San Diego Area. The San Diego County Water Authority (SDCWA), through some of its 24 wholesale agencies, treats and distributes water for the City of San Diego. Sewage and wastewater for San Diego are handled by the City of San Diego Metropolitan Wastewater Department (MWWD).

- The Imperial Irrigation District provides electric power and irrigation water to the lower southeastern portion of California's desert (this includes Imperial County and parts of Riverside and San Diego Counties).

- The Southern California Public Power Authority delivers electricity to approximately 2 million customers and includes the municipal utilities of the cities of Anaheim, Azusa, Banning, Burbank, Colton, Glendale, Los Angeles, Pasadena, Riverside, and Vernon, and the Imperial Irrigation District, Cerritos and San Marcos.

The principal natural gas providers in the project area are Pacific Gas & Electric, Southern California Gas Company, San Diego Gas & Electric, Southwest Gas Company, Long Beach Gas Department, City of Palo Alto, and City of Coalinga.

Additionally, water supply requirements may be met through one or more of the following water districts and companies throughout the project area:

- East Bay Municipal Utility District
- City of Burbank Water and Power
- City of Glendale Water and Power
- Kings River Conservation District
- City of Long Beach Water
- Los Angeles Water and Power
- Marin Municipal Water District
- Metropolitan Water District of Southern California
- North Marin Water District
- City of Pasadena Water and Power
- City of San Bernardino Water
- City of San Diego Water
- Hetch Hetchy Water and Power
- City of San Jose Water
- City of Santa Cruz Water

4.13.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Appendix G of the *CEQA Guidelines* states that a project would normally have a significant effect on the environment if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

- 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 have significant environmental effects.
- Not have sufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.
- Result in a determination by the wastewater treatment provider that 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.
- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Not comply with federal, state, and local statutes and regulations related to solid waste.

Impact UTL-1: Installation of fiber optic facilities could cross or coincide with existing utility lines and could effect and disrupt delivery of those utility services. (Less than Significant)

Underground fiber optic cable facilities installation could occur in public streets and railroad rights-of-way, which are areas commonly used for utility corridors. Because proposed installation would occur at a depth of more than one foot below ground, the project could impact existing underground utilities and service connections. As stated in the Project Description, underground utilities and service connections would be identified prior to commencing any excavation work. Prior to construction operations, "Dig Alert," "One-Call," or a similar underground utility contractor would be contacted to identify the locations of subsurface utilities. The exact utility locations would be determined by hand-excavated test pits dug at locations determined and approved by the construction manager (also referred to as "pot-holing"). Temporary disruption of service may be required to allow for construction. No service on such lines would be disrupted until prior approval is received from the construction manager and the service provider. All railroad companies would require coordination and notification of construction activities, and may require specific training, before any activities can take place within the railroad rights-of-way, including utility identification.

As indicated in Chapter 3, Project Description, Sempra Communications may propose the need to directional bore at a major utility crossing. At locations where the installation would cross other subsurface utilities or structures, the structure would be installed to provide a minimum of 12 inches of vertical clearance between it and the other subsurface utilities or structures, while still maintaining the applicable minimum depth requirement. To maintain the applicable minimum depth requirement, the structure would be installed under the existing utility. If the

12 inch vertical separation between the proposed structure and the other utility cannot be obtained, then the fiber optic cable facilities would be encased in steel pipe to avoid future damage.

Mitigation Measure: No mitigation is required.

Impact UTL-2: Fiber optic cable facilities installation along transmission tower lines may temporarily require deenergizing the lines and interrupting customer service. (Less than Significant)

All installation of OPGW cable along transmission tower lines would be coordinated with the appropriate service provider. In the event that lines need to be deenergized, the service provider would coordinate with the California Independent Service Operator to minimize impacts on customers.

Mitigation Measure: No mitigation is required.

REFERENCES – Utilities and Service Systems

Burbank Water and Power, http://www.burbank-utilities.com/index.htm

California Municipal Utilities Association, http://www.cmua.org/aboutcmu.htm

Imperial Irrigation District, http://www.iid.com/

San Diego, City of, City Hall website, http://www.ci.san-diego.ca.us/

CHAPTER 5

CEQA STATUTORY SECTIONS

5.1 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

The proposed project would have effects on biological and cultural resources, air quality, water quality, land use, aesthetics, agriculture, traffic, and noise that are potentially significant. The majority of the project impacts result from construction activities. They are temporary impacts that can be mitigated to less than significant levels with the mitigation measures identified in the Program EIR. However, the Telecommunications Program, if implemented, could still result in significant unavoidable environmental impacts. Mitigation proposed as part of the project, as well as measures identified in this EIR, would avoid or reduce most of the impacts to a less-than-significant level. But, the following significant adverse affects would be unavoidable, even with the implementation of the mitigation measures proposed as part of the project and identified in this report:

Impact HYD-4: Possible water quality degradation and siltation from accidental seepage or spillage of drilling fluids into streams.

Impact AIR-2: Emissions from construction activities could add to the regional pollutant loading of the area in air basins where air districts have set significance thresholds for both project construction and operation.

5.2 CUMULATIVE IMPACTS

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative analysis is intended to describe the "incremental impact of the project when added to other, closely related past, present, or reasonably foreseeable probable future projects" and can result from "individually minor but collectively significant projects taking place over a period of time (*CEQA Guidelines*, Section 15355).

A cumulative impact is created as a result of the combination of the project evaluated together with other projects causing related impacts. The purpose of this analysis is to disclose potential significant cumulative impacts resulting from the Telecommunications Program in combination with other comparable projects. The project involves a program to develop telecommunications infrastructure throughout the project area. Other companies with fiber optic networks in the project area include, but are not limited to, Qwest, XO Communications, Williams, AT&T Local Services, MCI WorldCom, Worldwide Fiber, Western Integrated Networks, Level 3 Communications, Metromedia Fiber Network, ICG, Time Warner and Cox Cable. It is

reasonable to assume that some of these companies have or are planning other networks elsewhere in California, as well. In addition to fiber optic networks, other linear, underground infrastructure in the project area that have related construction impacts include water and sewer pipelines and other utilities.

It is anticipated that the construction associated with installation of telecommunications infrastructure could potentially overlap with other public or private utility projects during the same timeframe. Such overlap would likely be identified during Sempra Communication's process of obtaining encroachment permit(s) for subsequent activities and would be properly addressed by the local planning agency at that time.

Given the current interest in fiber optic communications systems, it is conceivable that significant cumulative impacts could result from companies consecutively working within the same streets or neighborhoods. Local jurisdictions have in some cases responded to such cumulative effects by establishing moratoria on work on certain streets for given periods of time (e.g., 1 or 2 years). The establishment of such moratoria is one way of gauging whether significant adverse cumulative effects threaten a particular street or neighborhood. Such moratoria are intended to alleviate such effects, and the denial of encroachment permits to construct on such streets while the moratorium is in effect prevent a given project from contributing to significant adverse impact on the protected street or area.

Future projects planned by one or more of the fiber optic companies currently operating throughout the project area (or any other fiber optic companies) would not be publicly known until the company submits an application for an encroachment permit (or other permit or approval). Therefore, the precise routes of other project with which Sempra Communication's subsequent activities might contribute to cumulative impacts are not known. However, because of the temporary nature of the proposed project's potential effects, and because mitigation measures discussed in this document reduce project impacts the project's contribution to cumulative impacts would not be considered cumulatively considerable.

A discussion by resource topic of the project's potential cumulative impacts follows.

AESTHETICS

Upon completion, the proposed project would make no more than a de minimus contribution to cumulative aesthetic impacts because the fiber optic cable facilities are proposed for installation underground or overhead on existing utility poles and transmission towers. Implementation of Mitigation Measure AES-1a would ensure that the regeneration and OP-AMP stations would not have a cumulatively considerable contribution to visual quality of the project area. The project's contribution to cumulative impacts on visual quality during construction would not be significant due to the relatively short duration of the construction impacts.

AGRICULTURAL RESOURCES

The proposed project would have less than significant cumulative impacts on agricultural resources as nearly all the subsequent activities would take place within developed metropolitan and urbanized areas. Mitigation Measure AG-1a would compensate for the loss of any agricultural crops or resources via communication with the land owner/farmer where proposed actions may impact agricultural lands. Mitigation Measure AG-2a would prevent any significant disturbance to daily agricultural operational activities.

AIR QUALITY

With implementation of mitigation measures incorporated in the Program EIR, the temporary increase in criteria air pollutants from fugitive dust sources (e.g., earthmoving activities) and operation of construction equipment would not be cumulatively considerable given the short-term nature of the related effects. In addition, the project's contribution to criteria air pollutants would not be cumulatively considerable with implementation of mitigation measures AIR-2a and 2b in the Air Quality section of Chapter 4 that would reduce the impact of construction emissions to less than significant levels. In cases where mitigation measure AIR-2b is not feasible, even with the implementation of the mitigation measures AIR-2c, the residual impact of construction emissions would be significant. This would be a significant unavoidable impact of the project on air quality, and would therefore be cumulatively considerable.

BIOLOGICAL RESOURCES

Biological resources, particularly threatened, endangered, candidate, and other listed species, would not be cumulatively affected by the project. The state and federal governments, through CDFG, the Corps, USFWS, and NOAA Fisheries (formerly the NMFS), have promulgated a regulatory scheme that limits impacts on these species. The effects of the project area rendered less than cumulatively considerable due to mitigation requiring compliance with all applicable regulations that protect plant, fish, and animals species. The mitigation measures imposed and the provisions included in the project description (e.g., pre-construction surveys and resource staking, presence of an environmental monitor, contractor training) and Sempra Communications' commitment to re-route the fiber optic cable facilities around or bore under sensitive resources, when feasible, would render the project's contribution less than cumulatively considerable.

CULTURAL RESOURCES

The excavation and ground disturbances, individually and cumulatively, would not be likely to affect the oldest, largest, greatest, or most significant type of prehistoric or historic resource in the regions under study. Moreover, the potential for avoidance is great and standard mitigation measures are expected to reduce unavoidable impacts to less-than-significant levels. Therefore, the cumulative effect of the anticipated impacts on known and potential archaeological sites would also not be significant.

GEOLOGY AND SOILS

Development in California has the cumulative impacts of bringing additional people into potential contact with geologic hazards. In some instances, such as where mass grading occurs, a project may directly contribute to increased landslide hazard or soil erosion within that particular region.

The proposed project consists of the installation of telecommunications infrastructure through trenching, subsurface boring and aerial installation methods. The project would not expose persons to substantial risk of loss, injury, or death relative to seismic and geologic hazards; result in substantial soil erosion; potentially result in landslides or other mass movements; create substantial risks due to expansive soils;' or preclude wastewater from septic tanks, sewers, or other disposal facilities. The contribution of the project to cumulative impacts would be less than considerable.

HAZARDS AND HAZARDOUS MATERIALS

Subsequent activities related to construction of fiber optic cable facilities are not expected to make a cumulatively considerable contribution toward hazards or hazardous materials impacts. Contaminated soils or other materials may be unexpectedly encountered during excavation related to subsequent activities and would require appropriate handling and disposal by a licensed contractor. The characteristics and the volume of hazardous materials that could unexpectedly be encountered during construction cannot be determined in advance.

Some materials encountered during construction may be recyclable, which would reduce any possible impact on hazardous waste disposal/landfill capacity to a less-than-significant level. The cumulative impact of disposal of contaminated materials unexpectedly encountered during construction is considered a less-than-significant impact because of regulatory safeguards that limit exposure and require controlled handling and disposal.

HYDROLOGY AND WATER QUALITY

The cumulative effect of potential temporary construction-related impacts would be minimal. Because the direct and residual effects of construction spoils and disturbed soil erosion would be minor, no cumulative impacts would be expected. Successful stormwater pollution prevention would result in no cumulative construction-related impacts. No operational cumulative impacts are anticipated regarding flooding or drainage because Sempra Communications' protocol specifically requires that no construction be sited in a 100-year flood zone.

LAND USE AND PLANNING

From a land use perspective, the only long-term evidence of the proposed project would be in the form of cable markers, posted to indicate telecommunications infrastructure and potentially constructed regenerator / OP-AMP stations. These facilities would be constructed in accordance with local standards, as required in Mitigation Measure LUP-1a, and therefore, would not be cumulatively considerable.

The implementation of subsequent activities could result in direct cumulative impacts to existing and/or planned infrastructure systems within the project area (e.g. roadways, utility corridors, etc.). Impacts to existing and planned infrastructure could result from the potential duplication of physical impacts to particular right-of-ways within the project area (e.g. trenching, borings, etc.). This potential impact, however, would be speculative at this juncture, since no project-specific alignments are proposed. With the implementation of Mitigation Measure LUP-1a, these types of duplications would be minimized to a level of less than significant.

Additionally, the proposed project would not result in any physical division of established communities or neighborhoods. Although the proposed project will be located within areas with adopted habitat conservation plans or natural community conservation plans (refer to Table 4.9-2), the proposed project would be primarily located within previously disturbed right-of-ways. For these reasons, and through the implementation of Mitigation Measure LUP-1a, the proposed project would be in compliance with all applicable local land use plans and regulations. Accordingly, the cumulative effects of the proposed project on land use are expected to be less than significant.

NOISE

With implementation of mitigation measures proposed as part of the project, the temporary increase in ambient noise levels during installation of fiber optic cable facilities would not be cumulatively considerable given the short-term nature of the related impacts. Over the long term, the project's noise impact would be negligible, and therefore not cumulatively considerable, given that it would not involve any noise sources other than occasional motor vehicle trips associated with maintenance activities.

RECREATION

The project would have no long-term or cumulative impacts on recreational facilities or resources. Any disruption of recreational resources would most likely result from temporary construction activities lasting (at a particular recreational site) no more than one to five days, depending on the specific type of construction involved and the size of the affected facility.

TRANSPORTATION AND TRAFFIC

Cumulative construction-related traffic impacts would depend on the timing of other individual projects within coinciding locations. The project would not result in any increase in vehicular traffic beyond the temporary increases described in impact listed in the Transportation section of Chapter 4. Construction operations for installation of fiber optic facilities would result in temporary traffic obstruction on traffic flow and emergency access. Therefore, the project would not make a cumulatively considerable contribution to traffic impacts.

UTILITIES AND SERVICE SYSTEMS

In the event that multiple subsequent activities involving installation of cable along transmission tower lines occur simultaneously in close proximity to one another, there would be a potentially significant impact. Each of these subsequent activities could require temporarily de-energizing the lines. However, this impact would not be cumulatively considerable given that Sempra Communications would coordinate with the ISO to avoid such a scenario.

Additionally, multiple cable installations occurring simultaneously, either all being subsequent actions under this Program EIR or in combination with projects from other companies, could have a cumulative impact on underground utilities and service connections. Identifying these underground utilities prior to commencement of excavation work, using hand-excavated test pits to confirm the exact utility location, and obtaining approvals from service providers for any necessary shutdowns would adequately mitigate this potentially significant cumulative impact to a less than significant level.

5.3 GROWTH INDUCING IMPACTS

California's continuing and rapid population growth has statewide direct and indirect cumulative impacts on population and housing. The effect of the proposed project and similar proposed telecommunications projects on population growth is indistinguishable from the general mix of factors that lead people to move to California and is not a critical component in such decisions. It has no impact on the rate of growth due to births, public services (e.g., fire protection, police protection) are at or near their limit in some localities. This proposed project creates no new demand for those services. Utilities and service systems (e.g., sewer capacity, water supply) are at or near their capacity in some localities, however this proposed project creates no new demand for those services.

There is no direct access to the fiber optic cable; the network is not a form of infrastructure such as roads, water, or sewer lines that may induce population growth within specific areas. The availability of high-speed, high-volume communications is one factor among many (e.g., cost of living, economic opportunities, market availability, quality of schools, salary levels, tax levels) in the decision by people and businesses to locate in California. Therefore, the proportional contribution of the proposed system to California's future growth will be too remote and speculative for analysis. The indirect impacts of the proposed project and others of its type on that growth is only speculative. A less than significant impact will occur.

5.4 ENERGY CONSERVATION

Appendix F of the CEQA Guidelines requires that an EIR include a discussion of the potential energy impacts of the proposed project, with particular emphasis on avoiding inefficient or wasteful consumption of energy and reducing dependence on petroleum resources.

The proposed project would use electrical energy to boost and reconstitute the signals being transmitted on the fiber optic lines and to cool the equipment that performs this work. If the

project were to penetrate its potential market, it would significantly expand data, voice, and video communications capabilities at work and at home and would facilitate telecommuting and videoconferencing. In the long run, the Project has the potential to lessen transportation requirements and dependence on petroleum resources and reduce total energy consumption in the area it serves.

The project area is populated with over 26 million people (US 2000 Census) and the highest concentration of the business, commercial, and industrial activity resources in the western United States. Much of the energy consumed in the planned project area is imported from other parts of California, the western states, or even outside the country.

The transportation sector is the largest consumer of energy in California, using 34.6 percent of the total energy state requirements. Almost all of the energy used in the transportation sector is derived from oil and natural gas. Ultimately, the widespread use of fiber optics would avoid the need for face-to face meetings and prove an alternative method to deliver information thereby reducing energy consumed in the transportation sector. **Table 5-1** shows the petroleum consumption data for all retail gasoline and diesel stations, fleet fueling facilities and private storage tanks within the 15 counties and compares the average annual use per person. **Table 5-1** indicates that the highest per capita fuel use rates are in the major metropolitan areas where there is significant traffic congestion and lengthy commutes. Congestion increases energy use, requiring additional fuel for starts and stops and travel at below optimal speeds. The Bay Area counties of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Santa Cruz, as well as Orange County and San Diego County are all at or above the state average annual fuel use rate per person. The highest rates are in the San Francisco Peninsula and Marin County.

Operation of fiber optic systems would require electrical energy to boost and reformulate the signal. As use of the technology becomes more widespread with business and home uses, more electrical power would be needed to serve the needs of the fiber optic network. PG&E reports that the fastest rate of growth in its service area between 1994 and 2000 was in the communications section, which increased by 47 percent since 1994. Most of the growth that occurred between 1998 and 2000 was associated with expansion of Internet uses. While the rate of growth was impressive, the total electrical consumption by the communications sector is still less than 2 percent of the total electrical consumption.

The electricity consumed in California is generated from a high percentage of hydroelectric and renewable resources. **Table 5-2** shows the gross electrical production for 2000. The use of fiber optics would ultimately shift energy use from petroleum dependent transportation to electrical power, which has a higher renewable base.

Use of fiber optic communications is also inherently more energy efficient than reliance on physical transportation. Each 10-mile trip in a vehicle that uses 18 miles per gallon consumes

TABLE 5-1
GASOLINE CONSUMPTION THROUGHOUT THE GEOGRAPHIC SCOPE

	Population[a]	Millions of Gallons Consumed	Annual Gallons Consumed per Person
California	33,226,000	13,496.2	406
Bay Area Average			468
Alameda	1,413,400	610.4	432
Contra Costa	906,500	403.6	445
Marin	244,100	122.6	502
San Francisco	783,400	381.4	487
San Mateo	716,500	371.1	518
Santa Clara	1,686,400	816.0	484
Santa Cruz	249,000	101.9	409
LA Basin Average			399
Los Angles	9,587,300	3,660.2	382
Orange	2,734,500	1,246.7	456
Riverside	1,441,000	547.2	380
San Bernardino	1,631,500	620.6	380
San Diego / Imperial Average			363
San Diego	2,795,800	1,136.3	406
Imperial	143,000	45.8	320
Central Valley Average			361
Sacramento	1,441,000	547.2	380
Fresno	781,900	268.3	343

[a] Department of Finance, as reported by CEC.

SOURCE: California Energy Commission, 1998 data, , www.energy.ca.gov/fuels/gasoline_stations.

63,480 British thermal units (BTU's) of energy. Use of fiber optic delivery of data would eliminate thousands of such trips. Each regeneration station would require a load of approximately 200-1000 kilowatts (kW), or 938,575 BTU's.

Table 5-3 shows the electrical consumption patterns in the areas that will be served by the project. California has the lowest annual electrical consumption rates per person of any state in the US. California uses approximately 8,610 kWhrs per year per person, compared to the

TABLE 5-2
CALIFORNIA GROSS ELECTRICITY PRODUCTION IN 2000

Resource Type	Gigawatt-Hours Produced	Percentage
Natural Gas	106,878	37.6%
Nuclear	43,533	15.3%
Hydro	42,053	14.8%
Coal[a]	36,804	13.0%
Imports – Northwest	18,777	6.6%
Geothermal	13,456	4.7%
Imports – Southwest	11,633	4.1%
Biomass and Waste	6,086	2.1%
Wind	3,604	1.3%
Solar	860	0.3%
Oil	449	0.2%
Total	284,133	100.0%

[a] Includes out-of-state plants owned by California utilities or with long term contracts to California suppliers.

SOURCE: CEC, 2002e

national average of 11,250 kWhrs (CEC, 2000d). The highest electrical consumption rates are in Santa Clara, where 77.6% of the energy consumed is for nonresidential industrial and commercial accounts (CEC, 2002d). Santa Clara is in the heart of Silicon Valley and contains other energy intensive facilities.

Electrical energy would also be needed to serve the air conditioning units that would be used to cool the regeneration stations. These units would have to meet efficiency standards that have been set by the CEC and the buildings they occupy would have to be designed to comply with the Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings. The Title 24 standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. New standards were adopted by the CEC in 2001 as mandated by Assembly Bill 970 to reduce California's electricity demand. The amended Title 24 standards will apply to the design and insulation of structures, including the regenerator and OP/AMP stations and to the space cooling equipment that is installed in these structures. Under AB 970, the California Energy Security and Reliability Act, signed September 6, 2000, the CEC will update and implement its appliance and building efficient standards to make the “maximum feasible” reductions in unnecessary energy consumption.

TABLE 5-3
ELECTRICITY CONSUMPTION IN PROPOSED PROJECT AREA

	2000 Population[a]	Millions of kWhr Consumed	Annual kWhr Consumed per Person
California	33,871,648	250,310	7,390
Bay Area Average			
Alameda	1,443,741	10,605	7,346
Contra Costa	948,816	6,815	7,183
Marin	247,289	1,568	6,341
San Francisco	776,733	5,748	7,400
San Mateo	707,161	5,135	7,261
Santa Clara	1,682,585	17,843	10,605
Santa Cruz	255,602	1,637	6,404
LA Basin Average			
Los Angles	9,519,338	63,919	6,715
Orange	2,846,289	19,704	6,923
Riverside	1,545,387	10,821	7,002
San Bernardino	1,709,434	11,867	6,942
San Diego/Imperial Average			
San Diego	2,813,833	17,741	6,305
Imperial	142,361	597	4,194
Central Valley Average			
Sacramento	1,223,499	10,359	8,467
Fresno	799,407	6,497	8,127

[a] Census 2000.

SOURCE: California Energy Commission, 2000 data, population data from Census 2000, www.energy.ca.gov/electricity/gross_system_power

In summary, the project as proposed by Sempra Communications would promote a more efficient transfer of information and would tend to shift energy use from the transportation sector to the electrical sector. This shift would further the goals of energy conservation by reducing overall per capita energy consumption, reducing reliance on petroleum products, and increasing use of energy produced by renewable resources.

5.5 EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental effects of the proposed Telecommunications Program are identified and discussed in detail in Chapter 4. Except for the significant unavoidable effects identified in the discussion of air quality and hydrology and water quality, all identified environmental effects of the project would be less than significant, or less than significant after implementation of the identified mitigation measures. The following topics of analysis in this Program EIR were found to have no significant effects:

- Mineral Resources;
- Population and Housing;
- Energy Conservation;
- Population Growth; and
- Public Services.

REFERENCES – CEQA Statutory Sections

California Energy Commission (2002b). California Utility Electricity Deliveries by County for 2000. http://www.energy.ca.gov/electricity, June 12, 2001.

California Independent System Operator. 2001. Operations Economic Report 2001. December 21, 2001.

Chen, Allan. "Research Finds Computer-Related Electricity to be Overestimated." Berkeley Lab, Science Beat. February 1, 2001.

Huber, Peter and Mills, Mark P. "Dig More Coal, the Computers are Coming," Forbes Magazine, May 31, 1999.

CHAPTER 6

ALTERNATIVES

6.1 OVERVIEW

In accordance with CEQA and the *CEQA Guidelines* (Section 15126.6(a)), an EIR must describe a range of reasonable alternatives to the project, or to the location of the project that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by the "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. An EIR is required to discuss only feasible alternatives, that is, alternatives that could feasibly attain most of the project's basic objectives. Statutes and regulations governing CEQA generally define "feasible" to mean an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological and legal factors. Factors generally taken into account in determining whether an alternative is feasible also include, but are not limited to, site suitability, economic viability, availability of infrastructure, General Plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and an ability to acquire, control or access an alternative site. While the EIR must discuss alternatives that may feasibly attain most of the project's basic objectives, the Lead Agency may ultimately reject any alternatives deemed to be infeasible based on factors such as those listed above.

This chapter addresses alternatives to the project, describes the rationale for including them in the EIR, discusses the environmental impacts associated with each alternative, compares the impacts of each alternative relative to those of the project and each of the other alternatives, and discusses the relationship of each alternative to the project objectives.

6.2 FACTORS IN SELECTION OF ALTERNATIVES

The CEQA *Guidelines* suggest, but do not explicitly require, that an EIR should briefly describe the rationale for selecting the alternatives to be discussed, identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination (*CEQA Guidelines*, Section 15126.6(c)).

The alternatives addressed in this EIR were selected in consideration of one or more of the following factors:

- The extent to which the alternative would accomplish most of the basic objectives of the project (see *Project Objectives* below);

- The extent to which the alternative would avoid or lessen any of the identified significant environmental effects of the project;
- The feasibility of the alternative, taking into account site suitability, economic viability, availability of infrastructure, general plan consistency, and consistency with other applicable plans and regulatory limitations; and
- The appropriateness of the alternative in contributing to a "reasonable range" of alternatives necessary to permit a reasoned choice.

Sempra Communications' Project Objectives for the Telecommunications Program are as follows:

1. Fill a need, in a cost-effective manner, for interstate fiber optics communication capacity throughout California in an extremely competitive telecommunications market;
2. Develop a program that allows the flexibility for subsequent actions to result in the least number of environmental impacts, to be cost-effective, and to be feasible and buildable in a timely manner;
3. Avoid or mitigate to "less than significant levels" project impacts to California's environment;
4. Create positive competitive pressures on existing telecommunications carriers; and
5. Promote opportunities for economic growth in California as businesses shift their focus to information services and technology.

6.3 ALTERNATIVES SELECTED FOR CONSIDERATION

The project description includes multiple installation methods for development of telecommunications infrastructure and the Program EIR provides an impacts analysis and applies appropriate mitigation measures to address those impacts identified for each method of construction. The project additionally proposes flexibility to utilize multiple methods of installation depending on several influencing factors including governing authority requirements and/or restrictions, density and location of existing buried utilities, soil or environmental conditions, surface conditions, vehicular traffic, and installation costs. The proposed project contemplates Sempra Communications choosing installation methods for a specific location based on a number of factors including engineering feasibility, rights-of-way availability, environmental effects, cost, and construction time factors.

This chapter addresses five alternatives to the proposed project: (1) a No Project Alternative; (2) Reduction of the Project Area Alternative; (3) Aerial Installation Only Alternative; (4) Underground Installation Only Alternative; and (5) Use of Existing Infrastructure Only Alternative. These alternatives are described below, followed by a discussion of their impacts and how they would differ from those of the proposed project.

These alternatives would not introduce additional impacts to those identified and mitigated in the EIR for the proposed project, but would instead use the impacts analysis for the project to determine the extent of those impacts for each method of installation if they were used exclusively. Therefore, the analysis of the potential significant effects for each alternative is generally discussed in this chapter and utilizes by reference the impacts analysis for the project as a basis for investigating the effects of each alternative.

ALTERNATIVE 1: NO PROJECT ALTERNATIVE

The No Project alternative is the circumstance under which the proposed Telecommunications Program is not approved, and therefore, fiber-optic facilities installation and operation by Sempra Communications would not be occur.

Environmental Effects of No Project Alternative

Under the No Project Alternative, none of the potentially significant impacts identified as resulting from the proposed project would occur. Specifically, there would be no impacts related to aesthetics, agricultural resources, air quality, biology, cultural resources, hydrology/surface water quality, land use, noise, recreation, or traffic/circulation. Even so, all of these potentially significant, yet temporary, impacts could be mitigated to less-than-significant levels as detailed in this EIR.

In general, the No Project alternative has no impact on the environment; however, it does not meet the project objective to implement a Telecommunications Program and provide fiber optic facilities for future customers.

The telecommunications market is constantly changing as new technology is introduced, and there are corresponding changes in regulations, supply, and demand. Given the increasing number of users of telecommunications services and the greater number of available devices (internet, digital television, and video conferences), the demand for additional telecommunications capacity will continue to increase whether or not the proposed project is implemented. Consequently, the changes to the environment from the proposed project would foreseeably occur regardless if the project were not approved.

ALTERNATIVE 2: REDUCTION OF THE PROJECT AREA

Determining whether to evaluate alternative locations must be based in part on whether any of the significant environmental effects of the project would be avoided or substantially lessened by putting the project in another location. The proposed project location encompasses multiple counties, and portions thereof, throughout California in which subsequent activities would be carried out. Therefore, instead of reviewing specific alternative locations, the CPUC considered changes in the size or scope of the project area. Viewing the geographic scope of the project area as a whole, including all or portions of the 15 counties in California within which the project is proposed, the analysis considered whether reducing the size of the project area by removing from the scope one or more counties would lessen the overall potential impacts of the project. This

alternative would reduce the geographic scope by removing locations of higher concentrations of sensitive resources primarily in rural and coastal areas, including southern portions of Santa Clara County (Gilroy, San Martin, Morgan Hill), coastal portions of western San Mateo County (Pacifica, Montara, Moss Beach, Half Moon Bay), and all of Santa Cruz, Fresno and Imperial Counties.

Environmental Effects of Alternative 2

Reducing the size of the project area may diminish the number of places throughout the state that may be impacted at any one time, but would not decrease the magnitude of impacts that would occur at any one place. Impacts on resources that may result in significant adverse effects would be specific to the geography under which the activities would occur. For example, implementation of the project in the rural or coastal areas may result in potentially significant impacts to resources of a biological and cultural nature due to less disturbance from development in those areas. Additionally, rural and coastal areas throughout California are more highly concentrated with agricultural resources than the more urbanized and developed regions, and the project would therefore potentially affect those resources as well. Removing these areas from the geographic scope of the project could incrementally lessen overall impacts to these resources. However, impacts could still occur in the more urbanized and developed areas that were not excluded from the project area such as San Francisco and Los Angeles counties where the impacts are potentially greater related to air quality, traffic/circulation, noise, surface water quality and land use, but not likely to impact biological or agricultural resources.

A reduction in the geographical scope of the project as identified in this alternative would have fewer, and in totality, less severe impacts. Consequently, the extent of potential significant effects would be decreased. The degree to which the effects would be decreased, however, is difficult to qualify at this time.

The overall impacts of the project would be incrementally reduced by lessening the total area encompassed by the project, and therefore, the alternative could be considered environmentally superior over the proposed project. Although the alternative may be environmentally superior to the proposed project, all impacts identified for the proposed project can be mitigated to a level of insignificance. Reducing the scope of the project area would also not meet the project objectives to fill a need for interstate fiber optic communication capacity throughout California.

ALTERNATIVE 3: AERIAL INSTALLATION ONLY

Alternative 3 considers the limitation of telecommunications infrastructure development by utilizing only aerial installation techniques. This alternative would not allow for any flexibility for installation of fiber optic facilities except for utilizing existing electric utility transmission line towers or existing distribution poles. Both of these installation methods are proposed as part of the project, however, this alternative was analyzed to determine whether or not utilizing only aerial installation techniques would lessen the environmental impacts while still obtaining the objectives of the project.

Environmental Effects of Alternative 3

Aerial installation methods generally have environmental impacts that are construction-related and thus temporary. Potentially significant impacts that were identified for the proposed project for aerial installation would be applicable to this alternative including impacts related to aesthetics, air quality, land use, noise, recreation, or traffic/circulation. However, because aerial installation results in no significant ground disturbance, impacts related to agricultural resources, biology, cultural resources, hydrology/surface water quality, would still occur but be greatly reduced, and therefore no longer significant. Although potentially significant impacts may result from implementation of this alternative, these impacts could be reduced to a level of insignificance by implementation of mitigation as described throughout Chapter 4 of this Program EIR.

Although use of existing transmission towers is an environmentally superior alternative, the disadvantage of this aerial installation method is the lack of flexibility to install fiber optic cable facilities. Transmission towers and corridors are typically only accessible if Sempra Communications holds agreements with the utility company with ownership of the corridor. The utility company must also have legal authority from the CPUC to lease its utility structures for fiber optic facilities. Moreover, multiple jurisdictions' rules throughout the project area are currently placing all existing aerial facilities underground or disallowing additional attachments to existing facilities. Compliance with these local jurisdictions could become an issue in those areas where transmission towers may only be available for use to a substation, however, connection between the substation and the building or customer would not be obtained through aerial installation due to local jurisdiction limitations or lack of availability of existing structures. This alternative would not allow Sempra Communications to meet its project objective to create a program that allows flexibility or create positive competitive pressures on existing telecommunications carriers.

ALTERNATIVE 4: UNDERGROUND INSTALLATION ONLY

Similar to Alternative 3, Alternative 4 considers the limitation of fiber optic cable facility implementation by utilizing only underground installation techniques. This alternative would not allow any flexibility for installation of fiber optic facilities except for underground in existing railroad rights of way, public road rights of way, and/or existing electric utility rights of way. Each of these installation methods are proposed as part of the project, however, this alternative was analyzed to determine whether or not utilizing only underground installation techniques would lessen the environmental impacts meanwhile still obtaining the objectives of the project.

Environmental Effects of Alternative 4

Underground installation methods generally have environmental impacts that are temporary and construction-related. Following installation, the fiber optic facilities installed using underground construction methods are minimally visible and therefore result in no permanent impacts. Potentially significant impacts that were identified for the proposed project would be applicable in total to this alternative. Temporary impacts associated with underground installation may result

in the greatest level of overall potentially significant impacts, as such construction methods that are utilized to cross sensitive resources, such as stream crossings, often provide the highest risk for potential impacts. In particular, streams are commonly traversed by the directional boring technique to avoid direct impacts to biological resources and surface water quality from trenching, accidental drilling fluid releases (described in detail in the Project Description) are nearly unavoidable and unpredictable even when implementing strict prevention methods and monitoring. Besides the increased risk for impacts to biological resources and surface water quality, cultural resources may also be impacted in areas where alternative methods of installation may not be employed, as ground disturbance can impact unanticipated cultural resources or previously recorded sites.

Impacts related to aesthetics, agricultural resources, air quality, land use, noise, recreation, and traffic/circulation that were identified for the proposed project may also result from this alternative. There is a much higher probability for significant impacts occurring from this alternative because the mitigation(s) to offset the identified impacts that may result from trenching are often implementation of alternative methods of installation (i.e., aerially spanning a waterway to avoid direct impacts to biological resources and water quality).

This alternative would not be considered environmentally superior to the proposed project as all the potential impacts that result from underground construction are neither less nor as readily avoidable as Alternative 4. Unlike with the project, this alternative does not allow for the flexibility of determining the least impacting and most economical method for installation, and more importantly, lack of flexibility from this alternative limits the methods under which facilities may be installed thereby reducing potential avoidance techniques (particularly related to impacts to biological and cultural resources). This alternative would not obtain the project objectives to fill the need for interstate fiber optics communication capacity throughout California in those areas where Sempra Communications.

ALTERNATIVE 5: USE OF EXISTING INFRASTRUCTURE ONLY

As Alternatives 3 and 4 limit the project to aerial or underground facility installation, respectively, Alternative 5 limits the project to use of existing infrastructure only, with no need for ground disturbance or installation of new facilities with the exception of handhole/manhole installation to maintain access to its facilities. Existing facilities include utilizing idle petroleum and natural gas pipelines and existing underground conduit in public rights of way.

Environmental Effects of Alternative 5

As Alternative 5 utilizes existing facilities, no additional construction would be required with the possible exception of minimal excavation for handhole/manhole installation. The potentially significant impacts identified for the proposed project resulting from ground disturbance during construction would not occur for this alternative include impacts to aesthetics, agricultural resources, air quality, biology, cultural resources, hydrology/surface water quality, land use, noise and recreation. Potential impacts could also occur to traffic/circulation when access to the existing facilities require installation equipment within roadways, however, due to the temporary

nature of the impact and the required coordination with the local authorities, it would not be considered significant.

Using existing underground ducts within roadways or other rights of way can be an environmentally benign alternative. If an existing underground duct has available room for the proposed fiber optic cable, there are negligible environmental impacts associated with opening the duct and installing the cable. Most of these facilities are located under city streets where project construction causes only short term, and minor vehicle traffic disruption while the optical fibers are pulled through the ducts and connected to existing facilities. This alternative greatly reduces the number of impacts identified for the proposed project, and is therefore considered environmentally superior.

Although environmentally superior to the proposed project, a substantial limitation of this alternative is that existing underground duct facilities are absent in large stretches of rural and undeveloped lands throughout the project area. Underground ducts are most prevalent in developed urban areas, however the demand by others in the telecommunications market can make availability difficult. Moreover, the use of existing infrastructure is extremely limiting to reach potential customers because connections to those customers could only occur where existing infrastructure is present. In many cases, no infrastructure now exists which could be used to reach residential and commercial consumers.

The cost effectiveness of this option is dependent upon the owner of the unutilized space and the willingness of the owner to allow use of the space. Where the applicant owns unused capacity in existing underground ducts, this construction method is the most preferable as it is cost-effective, buildable in a timely manner, and avoid or mitigates project impacts to less than significant levels. However, because the applicant owns very few of these types of rights, this method of installation would not be feasible as the primary installation method.

CHAPTER 7

REPORT PREPARATION

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CHAPTER 8

GLOSSARY

A glossary of terms and acronyms used in this document are included below, in alphabetical order. In some cases, the meaning of a term as used in this document may be specific to Sempra Communications' proposed project and may not coincide with the meaning intended in other contexts. For these terms, an effort has been made in this glossary to indicate alternative definitions that may be used elsewhere.

8.1 GLOSSARY OF TERMS

Cable	A bundle of glass optical fibers wrapped in thin plastic sheathing; cables come in a range of diameters depending on the number of fibers they contain. A smaller cable may contain 144 fibers; a larger cable, such as one containing 864 fibers, is known as a "trunk."
CDFG Code § 5652	Section 5652 of the California Department of Fish and Game Code
CEQA Guidelines Appendix G	California Environmental Quality Act Environmental Checklist criteria
Criteria Air Pollutants	Pollutants that are pervasive in urban environments and for which health-based state or national ambient air quality standards have been established.
Handhole	A handhole is a point of access to underground fiber optic cable. It may also be referred to as a "utility access vault" or "maintenance-hole:"
Manhole	A manhole is a point of access to underground fiber optic cable. It may also
Innerduct	A duct or conduit placed inside a larger conduit
Local exchange carrier facility	A facility into which fiber optic cable terminate to access a telephone company's subscribers who are within the facility's service area. Also known as a Central Office.
Skywrap	A fiber optic cable which is spiral-wrapped around the static line. The cable is about 0.33 inches in diameter.
Spread	A term indicating a combination of personnel (crew) and equipment that is needed to accomplish a task or part of a task.
Staging Area	An area where equipment and supplies needed for a task or set of tasks are stored.

Toxic Air Contaminants	Pollutants that occur at relatively low concentrations and are associated with carcinogenic and other adverse health effects, but for which no ambient air quality standards have been established.
Trunk	A large fiber optic cable that contains a greater number of fibers than a cable, such as 864 fibers.

B. GLOSSARY OF ACRONYMS AND COMMON REFERENCES

AB	California State Assembly Bill
ABAG	Association of Bay Area Governments
ACCMA	Alameda County Congestion Management Agency
ADSS	All Dielectric Self-Supporting Cable
ALUC	Airport Land Use Commission
AQMP	Air Quality Management Plan
ARPA	Archeological Resources Protection Act
BAAQMD	Bay Area Air Quality Management District
BACM	Best Available Control Measures
BACT	Best Available Control Technology
BART	Bay Area Rapid Transit District
BCDC	Bay Conservation and Development Commission
BLM	U.S. Bureau of Land Management
BMP	Best Management Practice
BTU	British thermal unit
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBSC	California Building Standards Code
CCAA	California Clean Air Act
C/CAG	City/County Association of Governments of San Mateo County
CCCTA	Central Contra Costa Transit Authority
CCTA	Contra Costa Transportation Authority
CCC	California Coastal Commission
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDPR	California Department of Parks and Recreation

CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHL	California State Historical Landmarks Register
CMA	Congestion Management Agency
CMP	Congestion Management Program / Plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon Monoxide
Corps	U.S. Army Corps of Engineers
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CSLC (or SLC)	California State Lands Commission
C.W.B.	Certified Wildlife Biologist
CY	cubic yards
dB	decibels
dBA	A-weighted decibels
DNL	Day-Night Average Noise Level
DTSC	California Department of Toxic Substance Control
DWR	California Department of Water Resources
ECPU	East County Planning Unit
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EPU	Eden Planning Unit
ESA	Federal Endangered Species Act
FAX	Fresno Area Express
FCAA	Federal Clean Air Act
FCRTA	Fresno County Rural Transit Agency
FEMA	Federal Emergency Management Administration
FERC	Federal Energy Regulatory Commission
GAP	Gap Analysis Program
GIS	Graphic Information System
G.O. 95	CPUC General Order 95

H_2S	Hydrogen Sulfide
HAZWOPER	Hazardous Waste Operations
HCP	Habitat Conservation Plan
HDPE	High-density polyethylene
HRI	California State Historic Resources Inventory
HVAC	Heating, Ventilating, and Air Conditioning
Hz	Hertz
ICAPCD	Imperial County Air Pollution Control District
ICC	Interstate Commerce Commission
ISO	Independent System Operator
kW	kilowatt
kWhr	kilowatt-hour
LATA	Local Access and Transport Area
LCP	Local Coastal Plan
LOP	Local Oversight Program
LOS	Level of Service
LT	Loose Tube Cable
LUST	Leaking Underground Storage Tanks
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MDTB	Metropolitan Transit Development Board
MMRP	Mitigation, Monitoring, and Reporting Plan
MROSD	Mid-Peninsula Regional Open Space District
MRZ	Mineral Resource Zones
MSCP	Multiple Species Conservation Plan
MTA	Los Angeles County Metropolitan Transportation Authority
MTC	Metropolitan Transportation Commission
MTP	Metropolitan Transportation Program
MTS	Metropolitan Transit System
MUNI	San Francisco Municipal Railway
MWWD	City of San Diego Metropolitan Wastewater Department
NCCAB	North Central Coast Air Basin
NCCP	Natural Community Conservation Planning
NCTD	North San Diego County Transit District
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service

NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_X	Nitrogen Oxides
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NTP	Notice to Proceed
NMR	National Wildlife Refuge
OES	California Office of Emergency Services
OCTA	Orange County Transportation Authority
OP-AMP	Optical amplification
OPGW	Optical Ground Wire
ORA	Office of Ratepayer Advocates
OSHA	U.S. Occupational Safety and Health Administration
PBO	Programmatic Biological Opinion
PCBs	polychlorinated biphenyls
PEA	Proponents Environmental Assessment
PEIR	Program Environmental Impact Report
PG&E	Pacific Gas and Electric Company
PHI	California Points of Historic Interest
PM-2.5	Fine Particulate Matter, 2.5 microns in diameter
PM-10	Suspended particulate Matter, 10 microns in diameter
PRC	Public Resources Code
PVC	Polyvinyl chloride
RAQS	Regional Air Quality Strategy
RCRA	Resource Conservation and Recovery Act
RCTC	Riverside County Transportation Commission
RMP	Risk Management Plan
ROG	Reactive Organic Gases
ROW	Right of Way
RT	Sacramento Regional Transit District
RTA	Riverside Transit Agency

RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo Transit
SANBAG	San Bernardino Association of Governments
SANDAG	San Diego Association of Governments
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCCRTC	Santa Cruz County Regional Transportation Commission
SCRRA	Southern California Regional Rail Authority
SDAB	San Diego Air Basin
SDCAPCD	San Diego County Air Pollution Control District
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas & Electric
SEA	Significant Ecological Area
SHBC	State Historical Building Code
SHPO	State Historic Preservation Officer
SOHP	State Office of Historic Preservation
SIP	State Implementation Plans
SJVAB	San Joaquin Valley Air Basin
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District
SLC (or CSLC)	California State Lands Commission
SLIC	Spills, Leaks, Investigations, and Clean-Ups
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District
SO_2	Sulfur Dioxide
SSAB	Salton Sea Air Basin
STA	Sacramento Transportation Authority
SVAB	Sacramento Valley Air Basin
SWPPP	Storm Water Pollution Prevention Plan
TACs	Toxic Air Contaminants
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
UBC	Uniform Building Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

VOC	Volatile organic compounds
VTA	Santa Clara Valley Transportation Authority
WHR	Wildlife Habitat Relationships
WPU	Washington Planning Unit