South Orange County Transportation Infrastructure Improvement Project (SOCTIIP)

Foothill-South

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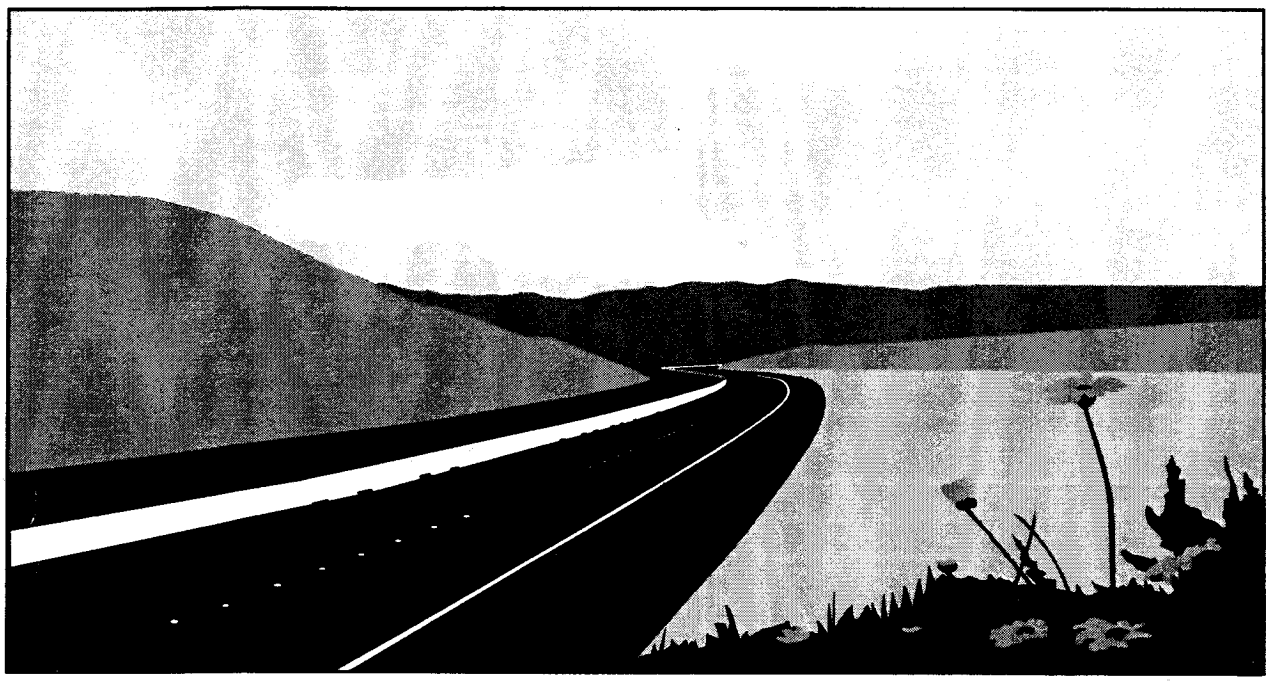

Draft Environmental Impact Statement/ Subsequent Environmental Impact Report

Volume 4

April 2004

Transportation Corridor Agencies

Caltrans

U.S. Department of Transportation
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Draft Environmental Impact Statement/Subsequent Environmental Impact Report and Draft Section 4(f) Evaluation for the South Orange County Transportation Infrastructure Improvement Project

VOLUME 4: Sections 4.20 to 13.0

To locate, construct and operate transportation improvements in southern Orange County and northern San Diego County. The Alternatives include corridor alternatives to extend existing State Route 241 from Oso Parkway (KP 23.15 (MP 14.38) to Interstate 5 in south Orange County and northern San Diego County, and Alternatives to improve existing and master planned arterial highways and to widen I-5 from the County boundary KP 34.27 (MP 21.30) to the interchange with I-405 (KP 116.29 (MP 72.28).

SUBMITTED PURSUANT TO:

Division 13, California Public Resources Code, 42. U.S.C. 4332(2)(c) et seq. and 49 U.S.C. 303

BY THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

And

FOOTHILL/EASTERN TRANSPORTATION CORRIDOR AGENCIES
ORANGE COUNTY, CALIFORNIA

COOPERATING AGENCY:

United States Department of the Navy

April 2004

PREFACE

PREFACE

The Environmental Impact Statement/Subsequent Environmental Impact Report (EIS/SEIR) for the proposed South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) is provided in five volumes. This preface lists the contents of each Volume.

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4.20 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION MEASURES RELATED TO EARTH RESOURCES

The potential impacts of the SOCTIIP Alternatives on earth resources are evaluated in detail in the Geotechnical, Geology and Soils Technical Report (GeoPentech, Inc., 2003) and are summarized in this Section. Refer to the Table of Contents for locations where this Technical Report is available for review or purchase.

4.20.1 AFFECTED ENVIRONMENT RELATED TO EARTH RESOURCES

This Section discusses the earth resource conditions that exist along the SOCTIIP build Alternatives. The discussion provides general descriptions of the various geologic units, geologic structure and geotechnical conditions present in the area. Specific details are provided for the areas traversed by the build Alternatives.

4.20.1.1 Regional Geologic and Seismic Setting

The alignments of the FEC-W, FEC-M, CC, CC-ALPV, A7C-ALPV, A7C-FEC-M, AIO and I-5 Alternatives trend generally north to northwest across the foothills of the Santa Ana and Santa Margarita Mountains. These mountains are in the Peninsular Ranges Physiographic Province of California, which is characterized by its generally northwest trending mountains and geologic structure. This Province is bounded on the north by the Transverse Ranges Province, which is characterized by its east-west geologic structural and topographic grain and on the east by the Colorado and Mojave Desert Provinces.

The most complete section of late Mesozoic and Cenozoic geologic units in the north part of the Peninsular Ranges Province is exposed in the foothills and valleys along the alignments of the SOCTIIP build Alternatives. These units are divided into surficial and bedrock units. The surficial units are generally composed of poorly to moderately consolidated sediments of Pleistocene and Holocene geologic age, and generally occur in valley bottoms. The surficial units include landslide deposits within the bedrock units, and man-made fills. The bedrock units consist of a series of clastic sedimentary rocks of Upper Cretaceous to Tertiary geologic age. They are composed dominantly of marine and non-marine sandstones and siltstones that form a blanket that thickens to the south and west with a thickness estimated to be as much as 7,500 m (24,600 ft). Below the sedimentary bedrock units, and not exposed along the alignments of the SOCTIIP build Alternatives, are the basement or subjacent series rocks, of Middle to Upper Jurassic geologic age. These rocks form much of the core of the Santa Ana Mountains, and consist of crystalline and metamorphic rocks that are unconformably overlain by the sedimentary bedrock units.

4.20.1.2 Site Geologic Setting

The locations of the SOCTIIP build Alternatives with respect to the geologic units and structures in the area are shown on Figures 4.20-1. Figures and tables cited in this Section are provided following the last page of text in this Section.

Principal Surficial Units

Man-Made Fills

Although not shown on Figure 4.20-1, there are deposits of artificial (man-made) fill locally along the alignments of the SOCTIIP build Alternatives. In most cases, these fills were likely derived from nearby geologic units and, thus, would be similar in lithology. However, wide variability in material type can occur in man-made fills, because of variability in the source materials (i.e., varied bedrock and alluvial units), and because of variations in the way the fills were placed. Important factors associated with man-made fills include the degree to which the area beneath the fill was prepared before fill placement and the degree to which the fill material was compacted. Depending on site-specific conditions, non-engineered, man-made fill may need to be removed as part of the grading for the SOCTIIP build Alternatives.

Landslide Deposits

As shown on Figure 4.20-1, there are areas of small to very large landslide deposits within the sedimentary bedrock units in the general areas of the SOCTIIP build Alternatives. Certain bedrock units are more prone to landsliding than others. For example, relatively few landslides are mapped in the Santiago Formation, whereas landslides are common in the Monterey and Capistrano Formations.

The lithology of landslide materials is dependent on the bedrock source, and tends to be clayey silt to silty sand. Because these masses have moved, they may be more porous and lower in density than the intact bedrock. These masses are prone to continued downslope movement during or after periods of substantial rainfall. However, some landslide masses may be relatively stable in their current configurations. Although perhaps otherwise stable, renewed downhill movement of a landslide mass can result if grading removes support at the base of the landslide mass or adds weight near the top of a landslide mass. In many cases, landslide deposits would not be suitable for the support of embankments and road improvements. Therefore, these types of materials are commonly avoided, or removed and replaced as compacted fill during grading for a project.

Colluvium

Colluvial deposits are formed by in-place weathering or by downslope creep and slumping of weathered material and are not deposited by streams. Colluvium is locally present along all the alignments of the SOCTIIP build Alternatives, specifically in landslide head scarp areas, on gentle slopes and over parent material which is more susceptible to in-place weathering. Colluvial deposits are derived from the underlying or locally adjacent bedrock and, therefore, are of varying composition, reflecting the lithology of the parent material. In general, colluvial materials are clay-rich and contain varying amounts of organic material. These materials are typically unconsolidated and uncemented, low in density, lack structure and are poorly sorted to unsorted. Substantial amounts of the parent bedrock may be present as clasts within the colluvium.

Alluvium

Alluvium is present in the bottoms of all the major drainages and many of the minor drainages crossed by the alignments of the SOCTIIP build Alternatives. Alluvium is typically fine- to very coarse-grained sand and gravel, with varying amounts of silt and/or clay. Boulders may be present in the larger canyons or areas susceptible to debris flows. Alluvial deposits typically exhibit poor sorting, moderately to poorly developed lenticular bedding and local cross-bedding. The composition of alluvial deposits is varied, depending on source area and typical stream-flow velocity. Smaller drainages, which are developed on less consolidated and finer-grained bedrock units, typically contain alluvium that is more fine-grained. The fine-grained alluvium is typically of relatively low density and is often compressible. However, the coarse-grained sand and gravel deposits in major drainage courses may be well consolidated and dense. Older deposits of alluvium are locally present along the bottoms of the larger drainages in the area of the SOCTIIP build Alternatives. It is differentiated from active alluvial deposits because it is no longer in the active regime of the stream. Older alluvium is generally similar in lithology to younger alluvium deposits, except the older material may have a higher silt and clay content and may have a higher density.

Non-Marine Terrace Deposits

Non-marine terrace deposits are locally present as uplifted terraces along major drainages and as isolated erosional remnants of alluvial terraces in lower lying areas in the study area. These deposits have been in place for sufficient time for soil development. Terrace deposits are commonly light brown, yellowish-brown and gray conglomerate, and reddish-brown sands and gravels which are moderately consolidated and fine- to coarse-grained, possibly with scattered boulders. The finer material commonly forms a matrix around the larger grains and is normally silty and/or clayey. Poorly developed bedding can be lenticular and/or cross-bedded in nature. Scattered clayey buried soil horizons may be present. These deposits are generally well consolidated and dense, although beds or zones of porous, compressible material may be present. Cobbles and boulders are often present.

Marine Terrace Deposits

As shown on Figure 4.20-1, marine terrace deposits are present along the coast, at the southern ends of the alignments of the SOCTIIP build Alternatives. The deposits are the result of tectonic uplift and/or changes in sea level, which resulted in beach and near-shore deposits being exposed. Soil development in these deposits is dependent on age. Older deposits have well-developed soils with localized, moderately developed calcareous horizons. The deposits are commonly light brown to yellowish-brown to orange, and are fine- to medium-grained sand and silty sand, with local lenses of coarse-grained sand and pebble gravel, especially near the base. Bedding is commonly poorly developed, but can be lenticular and/or cross-bedded. The deposits are typically well consolidated and dense, except where loosened by weathering.

Bedrock Units

As shown on Figure 4.20-1, the alignments of the SOCTIIP build Alternatives cross eight mapped bedrock units, which, from youngest to oldest, are: the Capistrano, Monterey, San Onofre Breccia, Topanga, Sespe, Santiago, Silverado and Williams Formations. The general characteristics of these Formations are described in the following Sections.

Capistrano Formation

The siltstone member of the Capistrano Formation is present along the southwest part of the study area, along most of I-5 through San Clemente and along parts of the alignments parallel to Avenida Pico, and north to Ortega Highway. This Formation is present along the eastern alignments, from their intersection with I-5, north to about the trace of the Cristianitos Fault. The Capistrano Formation is generally composed of medium-gray to brown, clay-rich, micaceous siltstone. Whitish-gray sandstone is common in poorly developed beds and lenses. Locally hard, dark gray to bright orange, calcareous concretions form irregular discontinuous beds. Below the oxidation zones, the siltstone is commonly dark olive-gray and, when freshly exposed, has a strong petroliferous odor. Locally, thin interbeds of well-developed clay are present. Gypsum-filled joints and irregular seams are common in the oxidized part of the siltstone.

General characteristics of the Capistrano Formation (siltstone facies) are:

- Erodibility is moderate.
- Expansivity ranges from moderate to low.
- Rippability is typically easy.
- Collapsibility/compressibility is generally low.
- Slope stability is generally poor for natural and cut slopes.
- Suitability for fill is poor.
- Liquefaction potential is low.
- Permeability is low.

Monterey Formation

The Monterey Formation is present along parts of the western alignments, west from Avenida Pico and north to near the ridge top south of Prima Deshecha Landfill. The massive landslide in the hillside area west of and uphill from the alignment of the A7C-FEC-M Alternative, between the Landfill and Ortega Highway, may also consist of materials mostly derived from the Monterey Formation. This Formation also appears to be present along the alignments of the FEC-W and FEC-M Alternatives, in a small area west of Cristianitos Creek and south of the existing electrical substation at the end of Avenida Pico.

The Monterey Formation is an interbedded mix of thinly bedded siltstones, claystones and sandstones. The siltstones are commonly gray to greenish-gray to buff, thinly bedded and commonly diatomaceous and/or tuffaceous. The siltstones are poorly to well indurated and commonly sandy and/or clayey. The claystones are commonly gray to olive-gray to buff, thinly

bedded and commonly sandy or silty. They are generally poorly to moderately indurated. The sandstones are very light gray to gray, commonly stained orange, predominately very fine- to fine-grained and feldspathic. They are unconsolidated to moderately cemented, generally with calcareous cement and are commonly micaceous and locally tuffaceous. In most areas, the tuffaceous component of the sandstones and siltstones is bentonitic and can result in beds to about 30 centimeters (cm) (one ft) of nearly pure clay. Below the oxidation zone, the various lithologies in the Monterey Formation are light gray, to gray, to black. Regionally, the Monterey Formation contains basal coquina limestone beds, travertine beds and substantial amounts of montmorillonite clay.

General characteristics of the Monterey Formation are:

- Erodibility is high.
- Expansivity ranges from moderate to high.
- Rippability is typically easy.
- Collapsibility/compressibility is generally low.
- Slope stability is generally poor to moderate for natural and cut slopes.
- Suitability for fill is poor.
- Liquefaction potential is low.
- Permeability is low.

San Onofre Breccia

San Onofre Breccia is present along the alignment of the A7C-ALPV Alternative, adjacent to both sides of San Juan Creek and along the alignments of the CC and CC-ALPV Alternatives, for about three km (two mi) south of San Juan Creek. This Formation is not present along the alignments of the A7C-FEC-M, FEC-M and FEC-W Alternatives. San Onofre Breccia in the SOCTIIP area is an extremely varied unit consisting chiefly of breccia with interbedded siltstones, sandstones and conglomerate. The unit is massive to very poorly-bedded and is characterized by large variations in structure and lithology over very short distances. The unit is both marine and non-marine in origin. Typically, the breccias of the San Onofre have a siltstone to very coarse sandstone matrix with angular clasts as large as a meter (a few feet) in maximum dimension. The siltstone matrix is commonly brown to brownish-gray, poorly sorted, poorly bedded and moderately well-indurated. The matrix can grade laterally and vertically into sandstone or gravelly conglomerate, with little change in enclosed clasts. The sandstone to conglomerate matrix is commonly well indurated, but can be poorly indurated, poorly sorted and poorly bedded, to massive and characterized by very angular grains. The sandstone/conglomerate matrix is argillaceous, quartzo-feldspathic and generally contains substantial amounts of biotite. It is commonly iron-stained and red to reddish-brown in color, with some orange staining in the finer-grained material. Locally, the matrix is composed of white to light gray to pink tuffaceous siltstone, which has devitrified to mostly clay. Clasts in the San Onofre Breccia have varied composition, but include volcanics, green schist facies metamorphics and a wide range of sedimentary lithologies. San Onofre Breccia interfingers with the underlying Topanga and the overlying Monterey Formations and is reported to contain siltstone and sandstone interbeds in lenticular structure similar to both these bounding formations. Local beds of tuff also exist.

General characteristics of the San Onofre Breccia are:

- Erodibility is low to moderate.
- Expansivity is low.
- Rippability is typically difficult.
- Collapsibility/compressibility is generally low.
- Slope stability is generally moderate to good for natural and cut slopes.
- Suitability for fill is good.
- Liquefaction potential is low.
- Permeability is moderate to high.

Topanga Formation

The Topanga Formation appears to exist along limited reaches of the alignment of the A7C-ALPV Alternative, in the vicinity of San Juan Creek. This Formation typically consists of yellowish-brown to light-brown, fine-grained, thinly bedded, marine, silty sandstone with interbedded siltstone and minor conglomerate. The unit is typically moderately to well indurated and well-cemented sandstone beds are common.

General characteristics of the Topanga Formation are:

- Erodibility is moderate to high.
- Expansivity is low to moderate.
- Rippability is typically moderate to difficult.
- Collapsibility/compressibility is generally low.
- Slope stability is generally good for natural and cut slopes.
- Suitability for fill is good.
- Liquefaction potential is low.
- Permeability is high.

Sespe Formation

The Sespe Formation is mapped along the northern approximately 2.4 km (1.5 mi) of all the SOCTIIP build Alternatives in Cañada Chiquita. The Sespe Formation is predominantly an arkosic sandstone with interbedded conglomerate, siltstone and claystone. The sandstones are reddish to pale orange to light yellowish-gray, medium- to coarse-grained, poorly and thickly bedded, and poorly to moderately well-indurated. They are generally somewhat silty and commonly crossbedded and locally well and thinly bedded. Grains are subangular to subrounded, quartzo-feldspathic in composition, and the sandstones are locally biotite rich. The siltstones and claystones are pale orange to light gray, generally thinly bedded, and gradational in grain size distribution. Conglomeratic beds are composed of well-rounded clasts in a subangular sandstone matrix. Clasts are commonly volcanic and are commonly moderately well-indurated.

General characteristics of the Sespe Formation are:

- Erodibility is moderate.
- Expansivity is low to moderate.
- Rippability is typically moderate.
- Collapsibility/compressibility is generally low.
- Slope stability is generally moderate to good for natural and cut slopes.
- Suitability for fill is good.
- Liquefaction potential is low.
- Permeability is high.

Santiago Formation

The Santiago Formation is present along about three to four km (two to three mi) of the alignments of the FEC-M, FEC-W, CC and A7C-FEC-M Alternatives, north of San Juan Creek. The Formation is also present along parts of these Alternatives south of San Juan Creek. It underlies the downhill parts of the massive landslide areas along and uphill from the alignment of the A7C-ALPV Alternative, on the west side of Cañada Chiquita.

The Santiago Formation is marine in origin, with some possible non-marine parts. It consists predominately of silty to clayey sandstone with subordinate siltstone with basal conglomerates present in some areas. In the lower parts of the unit, the sandstones are grayish-yellow to white to very light gray, silty and/or clayey, massive to broadly crossbedded, and moderately to well-indurated. The medium- to coarse-grained sandstones are generally friable, poorly sorted, contain angular grains and are quartzo-feldspathic in composition. In the upper parts of the unit, the sandstones are grayish-yellow to greenish-gray to brownish-gray, fine- to medium-grained, and poorly bedded. Grains are angular to subangular, poorly to well-sorted, and quartzo-feldspathic in composition with minor biotite. The siltstones are greenish-gray to reddish-brown, sandy and/or clayey, and thinly bedded. In the lower parts, they may be chloritic and are generally lenticular in nature. The basal conglomerates are lenticular in nature and composed of cobbles of red and green metavolcanics, light colored plutonic rocks, quartzite and hard sediments. They are massive and well-indurated. Local, thin, lenticular bodies of greenish-gray clay also occur.

General characteristics of the Santiago Formation are:

- Erodibility is moderate.
- Expansivity is low.
- Rippability is typically moderate.
- Collapsibility/compressibility is generally low.
- Slope stability is generally moderate to good for natural and cut slopes.
- Suitability for fill is good.
- Liquefaction potential is low.
- Permeability is moderate to high.

Silverado Formation

The Silverado Formation appears to be present along the alignment of the FEC-M Alternative. Along the FEC-M Alternative, the northernmost mapped extent of this Formation is just north of San Juan Creek. South of San Juan Creek, this Formation is exposed locally along Cristianitos Canyon.

The Silverado Formation is thought to be non-marine in origin in the lower parts and composed of mixed marine and non-marine sediments in the upper parts. The lower parts consist of a moderately indurated basal conglomerate overlain by interbedded sandstone, siltstone and claystone. The sandstones are gray, greenish-gray and buff, coarse-grained and generally thickly bedded with some crossbedding with some lower beds being lenticular. Grains are angular to subangular, unsorted to poorly sorted and quartzo-feldspathic in composition, with lesser amounts of biotite, anauxite and carbonates. Sandstones are generally poorly indurated. The interbedded siltstones and claystones are red to brown, with two distinctive clay beds of brownish-gray to olive-brown pisolitic clay and whitish-gray clay near the bottom of the unit. The upper part of the Silverado Formation is predominately massive pebbly sandstones of non-marine origin with fine-grained bedded sandstone in areas representing marine deposition. These are moderately to well-indurated and crossbedded. Minor yellowish-brown siltstone and clayey siltstone are interbedded in thin beds. Regional studies also report local occurrences of lignitic shale beds.

The general characteristics of the Silverado Formation are:

- Erodibility is generally high.
- Expansivity is generally low.
- Rippability is typically moderate.
- Slope stability is generally moderate to good for natural and cut slopes.
- Suitability for fill is generally good.
- Permeability is low to moderately low.

Williams Formation (Pleasants Sandstone Member)

The Pleasants Sandstone Member of the Williams Formation is present along the alignment of the FEC-M Alternative, east of the Mission Viejo Fault, extending from about the ridge top south of San Juan Creek northward to the creek.

The Pleasants Sandstone Member is predominately light tan to olive-gray, medium- to fine-grained sandstone interbedded with light gray to yellowish-gray, medium- to fine-grained sandstones and siltstone. The sandstones are poorly bedded and massive, thinly bedded where silty or clayey, well-sorted and generally poorly cemented. Some calcareous sandstones have very well-cemented concretionary layers and may be crossbedded. Grains are angular and quartzo-feldspathic in composition with subordinate biotite. The siltstones are thinly bedded, poorly indurated and clayey.

The general characteristics of the Pleasants Sandstone Member are:

- Erodibility ranges from low to high.
- Expansivity is generally low.
- Rippability is typically moderate to difficult.
- Slope stability is generally moderate to poor.
- Suitability for fill is generally good.
- Permeability is moderately low.

Geologic Structure

The dominant structural features of the Peninsular Ranges Province are northwest to west-northwest trending fault zones. These zones separate large elongated blocks that stand at different structural elevations. Most of the faults either die-out to the northwest, or merge with or are terminated by the east-trending steep reverse faults that form the southern margin of the Transverse Ranges Province. Within this framework, the Santa Ana Mountains are a large flexure which has been tilted upward on the east side along the Whittier-Elsinore Fault zone, producing irregular and complex highlands that slope west toward the Pacific Ocean.

Yerkes et al (1965) include the Santa Ana Mountains within the east margin of a wedge-shaped central block, which is one of four large subdivisions of the Los Angeles basin. Contacts between adjoining blocks are major fault zones of faulting or flexure in the basement rocks along which vertical and lateral movements took place intermittently during the deposition of the superjacent bedrock units.

Uplift occurred during the Pleistocene along the Whittier-Elsinore Fault Zone. Schoellhamer et al (1981) suggest that the structure of the northern Santa Ana Mountains is dominated by a broad, north-plunging anticline that underlies the main mass of the mountains and is truncated on the northeast by the Whittier-Elsinore Fault Zone. Numerous north- to northwest-trending, down-to-the-west, normal faults cut the folds into many blocks. In a broad sense, the west limb of the north-plunging anticline appears as a homoclinal sequence (Morton et al, 1973) of mostly westerly-dipping rocks. Three mapped inactive faults disrupting the strata of the homoclinal feature in the immediate area of the alignments are the Aliso Viejo, Mission Viejo and Cristianitos Faults. These faults, shown on Figure 4.20-1, are roughly subparallel to each other and are about three to five km (two to three mi) apart.

Groundwater

The presence of groundwater in bedrock units in the study area is generally at depths greater than would be encountered during construction of the SOCTIIP build Alternatives. However, groundwater may be encountered in deep cuts, particularly those created for landslide and slope stability remediation. Perched groundwater may be encountered locally within cut slopes, ancient landslides and at fault zones present along the alignments of the SOCTIIP build Alternatives.

Groundwater also occurs at relatively shallow depths, on the order of a few m (several ft) in some canyon bottoms and local depressions. For example, shallow groundwater conditions were observed in Cañada Chiquita. Other locations of shallow groundwater conditions are segments of Cristianitos Canyon, San Juan Creek, Cañada Gobernadora, Segunda Deshecha Cañada and San Mateo Creek. Shallow groundwater may also be present to a limited extent in some of the smaller drainages that are not identified as wetlands or having perennial stream flow.

Figures 4.20-2 and 4.20-3 show the locations of known water wells in the vicinity of the alignments of the SOCTIIP build Alternatives. The operational status of these wells was not confirmed as a part of the analysis for this EIS/SEIR (it is conservatively assumed that all these wells exist and are operating). In addition to the known wells shown on Figures 4.20-2 and 4.20-3, there may be other wells for which records are not currently available.

Faulting and Seismicity

Being located in southern California, the SOCTIIP study area is in a seismically active region and is subject to seismically related geologic hazards. These hazards are related to the principal regional active faults in the region, which include the San Andreas, Elsinore, San Jacinto and Newport-Inglewood Faults, as shown on Figure 4.20-4.

As shown on Figure 4.20-4, the alignments of the SOCTIIP build Alternatives cross several bedrock faults. However, none of these faults is known to be active, which is defined as having experienced displacement within Holocene geologic time (defined as approximately the most recent 11,000 years). The Mission Viejo Fault has been classified as potentially active, based on displacements of materials of Quaternary geologic age. However, it is not considered to be capable of generating ground shaking as strong as the active regional faults noted above.

In addition to the known, mapped faults, recent studies (Grant et al, 1999; and Rivero et al, 2000) have suggested the possibility of blind thrust faults beneath the San Joaquin Hills (i.e., the hypothesized San Joaquin Hills Blind Thrust) and offshore (i.e., the hypothesized Oceanside and Thirtymile Bank Detachments) although the existence of these thrust faults is speculative. In addition to answering questions regarding whether these blind thrust faults actually exist, additional studies would help to define their recency of activity and their capability to generate large earthquakes in the study area.

4.20.2 METHODOLOGY RELATED TO EARTH RESOURCES

4.20.2.1 Data Sources

The 1996 report by Goffman, McCormick & Urban provided basic geotechnical, geology and soils data for the previous two primary alignments previously considered for the SOCTIIP (the BX alignment (now referred to as the CC Alternative) and the CP alignment (which is no longer a SOCTIIP Alternative). The data available in that report were supplemented for the Geotechnical, Geology and Soils Technical Report, using more recently published information and site-specific studies prepared by the TCA for the SOCTIIP build Alternatives.

4.20.2.2 Identification of Geotechnical, Geology and Soils Issues

The California Division of Mines and Geology (CDMG, now known as the California Geological Survey (CGS)) provides guidance in preparing geologic input to environmental reports. For this EIS/SEIR analysis, that checklist, titled "Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports" (Note 46, 1975) was used. A summary of that checklist of issues related to earth resources is provided below:

- Earthquake Damage. Fault movement (ground rupture), liquefaction, landslides, differential compaction/seismic settlement, ground rupture, ground shaking, tsunami, seiche and seismically induced flooding.

- Waste Disposal Problems. Change in groundwater levels, disposal of excavated material and percolation of waste material.

- Slope and/or Foundation Instability. Landslides and mudflows, unstable cut and fill slopes and collapsible and expansive soils, trench wall stability.

- Erosion, Sedimentation and Flooding. Erosion of graded areas, alteration of runoff, unprotected drainage ways and increased impervious surfaces.

- Land Subsidence. Extraction of groundwater, gas, oil and geothermal energy; hydrocompaction and peat oxidation.

- Volcanic Hazards. Lava flow and ash fall.

For the SOCTIIP build Alternatives, these issues were evaluated relative to the potential for the geologic environment to adversely impact the proposed Alternative, and the Alternative's potential impact on the geologic environment. Table 4.20-1 provides a list of these basic considerations related to earth resources used in reviewing/evaluating these issues related to the SOCTIIP Alternatives.

The CGS checklist also includes mineral resources. Refer to Section 4.22 (Affected Environment, Impacts and Mitigation Measures Related to Mineral Resources) for discussion of that checklist item.

4.20.3 IMPACTS RELATED TO EARTH RESOURCES

4.20.3.1 Construction Impacts Related to Earth Resources

Earthquake Damage

Fault Movement

No active faults are known to cross any of the SOCTIIP build Alternatives and no Earthquake Fault Zones have been mapped along the bedrock faults in the study area. Therefore, the

potential for a fault rupture hazard associated with the construction and/or operation of any of the SOCTIIP build Alternatives is considered remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create facilities subject to fault movement. Therefore, the No Action Alternatives would not result in any impacts related to fault movement.

Liquefaction

Regional studies by the CGS (CDMG, 2001; CGS, 2002) have identified deposits that are potentially liquefiable in the study area. These deposits are located in the Cañada Chiquita, Cañada Gobernadora, San Juan Creek, Segunda Deshecha and Cristianitos Creek drainages. In addition, the site specific SOCTIIP preliminary studies (Leighton and Associates, 2002b) have identified subsurface conditions that indicate a potential for liquefaction along the FEC-M and FEC-W Alternatives at the I-5 connector and San Mateo Creek; Blind/Gabino Creeks; and the upper reaches of Cristianitos Creek, San Juan Creek, Cañada Gobernadora, Chiquita Woods and Cañada Chiquita at Oso Parkway. The SOCTIIP geotechnical reports provide estimated potential settlements associated with liquefiable deposits along the Alternatives, and typically recommend that focused detailed studies be completed during final design for the selected Alternative, to more specifically define the aerial extent of the liquefiable deposits along that alignment, and to develop remedial measures to avoid or remediate potential impacts related to liquefaction in these areas. Because the final design and construction of the selected Alternative will incorporate these recommendations as part of the defined project, the potential for liquefaction related damage along the FEC-M and FEC-W Alternatives would be remote.

Considering the geologic conditions present, and the same design and construction assumptions, the remainder of the SOCTIIP build Alternatives share the same potential liquefaction impacts as the FEC-M and FEC-W Alternatives. Each of the build Alternatives would include the same types of detailed study and remedial recommendations to address liquefaction as part of the project definition, final design and construction. Therefore, similar to the FEC-M and FEC-W Alternatives, the potential for liquefaction related damage along the alignments of any of the other build Alternatives would also be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create any facilities subject to liquefaction. Therefore, the No Action Alternatives would not result in any impacts related to liquefaction.

Landslides

Regional landslide hazard studies by CGS (CDMG, 2001; CGS, 2002) have identified landslide prone areas along the alignment of the FEC-M and FEC-W Alternatives. The detailed, site-specific SOCTIIP preliminary studies have identified many existing landslides and potentially unstable slopes along the alignments of the FEC-M and FEC-W Alternatives. Left untreated, these areas could be subject to movement triggered by changed groundwater conditions or strong seismic shaking and thus, an adverse condition could exist. However, final design will consider these areas in further detail, and will develop remedial grading options to stabilize these areas.

Final design and construction of slopes and embankments under the FEC-M and FEC-W Alternatives will include the recommended remedial grading identified during the detailed final design studies. Therefore, the potential for earthquake-triggered movements of landslides under the FEC-M and FEC-W Alternatives would be remote.

Considering the geologic conditions present, and the same design and construction assumptions, the remainder of the SOCTIIP build Alternatives share the same potential for landslide impacts as the FEC-M and FEC-W Alternatives. Each of the build Alternatives would include the same types of detailed study and remedial recommendations to address landslides as part of the project definition, final design and construction of those Alternatives. Therefore, similar to the FEC-M and FEC-W Alternatives, the potential for landslide related damage along the alignments of the other build Alternatives would also be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create any facilities subject to landslides. Therefore, the No Action Alternatives would not result in any impacts related to landslides.

Differential Compaction and Seismic Settlement

The SOCTIIP preliminary geotechnical studies address seismic settlement associated with liquefaction, but not for non-liquefiable soils that may also undergo settlement due to seismic shaking. Detailed geotechnical studies conducted during final design will further refine the potential for this impact and will provide design and construction recommendations to avoid or reduce this potential hazard. At completion of construction, the potential for damage related to differential compaction/seismic settlement under all the SOCTIIP build Alternatives would be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create facilities subject to differential compaction and seismic settlement. Therefore, the No Action Alternatives would not result in adverse impacts related to differential compaction and seismic settlement.

Ground Rupture

The SOCTIIP preliminary studies did not identify subsurface conditions that indicate a potential for ground rupture associated with lurching or lateral spreading. Detailed geotechnical studies conducted for final design and construction for the selected SOCTIIP build Alternative will either confirm that no such hazard exists or will provide specific recommendations to avoid or reduce effects associated with the potential for ground rupture. Therefore, at the completion of construction of the selected SOCTIIP build Alternative, the potential for ground rupture due to lurching or lateral spreading would be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create any facilities subject to ground rupture. Therefore, the No Action Alternatives would not result in adverse impacts related to ground rupture.

Ground Shaking

The potential for strong ground shaking in the study area cannot be reduced, but the damage potential can be substantially reduced through incorporation of appropriate design and construction techniques. Final design and construction of all the SOCTIIP build Alternatives will incorporate geotechnical recommendations and current codes and practices relative to the potential for ground motion. Therefore, although the potential for damage due to seismic shaking under all the SOCTIIP build Alternatives cannot be precluded, that potential will be reduced to normal levels for this type of project as a result of design and construction features.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create any facilities subject to ground shaking. Therefore, the No Action Alternatives would not result in adverse impacts related to ground shaking.

Tsunami

The majority of the alignments of the FEC-M and FEC-W Alternatives is sufficiently inland from the coast, and/or at a sufficiently high elevation, that there is no tsunami hazard to the corridor under these Alternatives. However, there may be a potential hazard at the south end of the alignment at I-5. To evaluate the potential hazard, the elevation of the Alternative and the existing I-5 embankment were reviewed. The embankment would provide some protection from a tsunami, and a comparison of that information was made in relation to wave height estimates. According to the Office of Emergency Services, there is no published data that specifically addresses the area at San Mateo Creek relative to potential tsunami wave heights. However, information for other areas along the California coast suggests that wave heights from tsunami may range from about 3 to 12 m (10 to 40 ft). The existing I-5 embankment across much of San Mateo Creek is at an elevation of approximately 20 m (65 ft), and therefore, the embankment would provide effective protection to the south end of the FEC-M and FEC-W Alternatives. There is, however, a potential for wave run-up to travel under the existing bridge over San Mateo Creek, and up the Creek toward the corridor. Considering that wave height and energy would be reduced after crossing under the bridge and then spreading out across the valley floor, and that the road would be at an elevation of approximately 20 m (65 ft), the potential hazard due to tsunami is judged to be small under the FEC-M and FEC-W Alternatives.

Considering the geologic conditions present, and the same design and construction assumptions, the SOCTIIP build Alternatives which have interchanges with or widen I-5 share approximately the same potential for tsunami wave impacts as the FEC-M and FEC-W Alternatives. The Alternatives which do not intersect with or widen I-5 would have substantially less potential for impacts due to tsunami waves because they are much further inland and are at higher elevations. Therefore, similar to the FEC-M and FEC-W Alternatives, the potential for tsunami related damage along the alignments of the other build Alternatives would also be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create any facilities subject to tsunamis. Therefore, the No Action Alternatives would not result in any impacts related to tsunamis.

Seiches

A seiche is a tsunami type wave in an enclosed body of water such as a lake. There are no lakes or other enclosed bodies of water of sufficient size adjacent to any of the SOCTIIP build Alternatives or No Action Alternatives that would pose a hazard due to seiche under these Alternatives. Therefore, there would be no adverse impacts related to seiches under any of the SOCTIIP build and No Action Alternatives.

Flooding

Trampas Canyon Dam is located upstream from the A7C-FEC-M Alternative. However, because it is under the review of the California Division of Safety of Dams (DSOD), the dam owner is required to demonstrate to the DSOD that the Dam meets the stability requirements for potential seismic failure. If it cannot be shown to the DSOD's satisfaction that the Dam meets the stability requirements, the DSOD would require that the Dam be upgraded or removed from service. Since the Trampas Canyon Dam has been reviewed by the DSOD and meets the seismic stability requirements, the potential for downstream flooding is considered to be remote and not a potential impact under the A7C-FEC-M Alternative.

Waste Disposal Problems

Change in Groundwater Level

Locally, temporary construction dewatering may be required during construction of the SOCTIIP build Alternatives. However, no long term groundwater pumping is anticipated for any of the build Alternatives. Therefore, there is a potential for temporary impacts (lowering of water levels) at local groundwater wells, but no permanent impacts are anticipated related to dewatering. The known wells in the vicinity of these Alternatives are shown on Figures 4.20-2 and 4.20-3.

If there are currently unknown active wells discovered within the disturbance limits, it is assumed that they would be abandoned properly, but would be replaced as part of project construction, and therefore no long term adverse impacts to groundwater levels are anticipated under these Alternatives.

The following SOCTIIP build Alternatives have the potential for temporary impacts (lowering of water levels) at local groundwater wells during construction:

- FEC-M Alternative.
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.

- AIO Alternative.
- I-5 Alternative.

The following SOCTIIP build Alternatives have the potential for temporary impacts (lower of water levels) at local groundwater wells during construction and may require the replacement of some existing wells. In addition, these Alternatives have the potential for permanent groundwater level lowering at a mapped spring located about 0.8 km (0.5 mi) south of Ortega Highway:

- A7C-ALPV Alternative.
- A7C-FEC-M Alternative.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not result in temporary or permanent changes in groundwater levels. Therefore, the No Action Alternatives would not result in adverse impacts related to groundwater levels.

Disposal of Excavated Material

Some of the SOCTIIP Alternatives do not achieve a balance in earthwork (i.e. the volume of cut does not equal the volume of fill). The TCA anticipates that for cases where the imbalance is 3 to 4 million cubic meters (3.9 to 5.2 million cubic yards) or less, an earthwork balance can be achieved within the established disturbance limits by making slight modifications to road grades and adjusting the top and toe location of graded slopes. For Alternatives with an imbalance greater than 4 million cubic meters (5.2 million cubic yards), off-site measures will be required such as importing if the project requires additional material. Table 4.20-2 provides a summary of cut, fill and remedial amounts for the SOCTIIP build Alternatives. As shown on Table 4.20-2, the only Alternatives where excavated materials exceed 4 million cubic meters (5.2 million cubic yards) are the CC-Ultimate and the I-5 Alternative. These Alternatives would require off-site disposal of excess material.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and, therefore, would not require the disposal of excess soil from earthwork. Therefore, the No Action Alternatives would not result in any impacts related to disposal of excavated materials.

Percolation of Waste Material

Based on the Hazardous Materials and Hazardous Waste Sites Technical Report (P&D Consultants, 2003) construction of the SOCTIIP build Alternatives may involve contaminated soils but is not anticipated to involve contaminated groundwater. Any construction related disturbance or handling of contaminated soils would be conducted in compliance with existing federal, state and local regulations related to the handling, storage, removal and disposal of contaminated soils. Therefore, there would be no adverse impacts under these Alternatives related to the percolation of contaminated water, nor water leaching undesirable constituents from fill soils and then percolating into the subsurface.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not result in the percolation of waste materials. Therefore, the No Action Alternatives would not result in any impacts related to percolation of waste materials.

Slope and/or Foundation Instability

Landslides and Mudflows

As discussed earlier, many landslides have been identified along the alignments of the SOCTIIP build Alternatives. Final project design will consider these areas in further detail, and will develop remedial grading to ensure that slopes are stable at the completion of construction. Therefore, at completion of construction of the selected SOCTIIP build Alternative, the potential for damage related to landslides and mudflows would be remote under all the build Alternatives.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create facilities subject to landslides and mudflows. Therefore, the No Action Alternatives would not result in any impacts related to landslides and mudflows.

Unstable Cut and Fill Slopes

In the preliminary SOCTIIP geotechnical/geologic report for the FEC-M and FEC-W Alternatives, many potentially unstable cut slopes were identified along the alignment of these Alternatives. Remedial grading is included in description of these Alternatives to provide stable slopes at the completion of construction. Therefore, at the completion of construction, the potential for damage related to slope stability under the FEC-M and FEC-W Alternatives would be remote. For all other cut and fill slopes, final design and construction will incorporate standard design practices to avoid unstable conditions. Therefore, the potential for unstable conditions at the completion of construction of the FEC-M and FEC-W Alternatives is considered remote.

Considering the geologic conditions present, and the same design and construction assumptions, the remainder of the SOCTIIP build Alternatives will also have potential for adverse impacts related to unstable cut and fill slopes. Each of the build Alternatives would include the same types of detailed study and remedial recommendations to address unstable cut and fill slopes as part of the final design and construction of those Alternatives. Therefore, similar to the FEC-M and FEC-W Alternatives, the potential for adverse impacts or damage along the alignments of the other build Alternatives related to unstable cut and fill slopes would also be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create facilities subject to unstable cut and fill slopes. Therefore, the No Action Alternatives would not result in adverse impacts related to unstable cut and fill slopes.

Collapsible and Expansive Soil

The SOCTIIP preliminary studies identified locations where existing soils have the potential for collapse or expansion that could damage structures of the FEC-M and FEC-W Alternatives, and identified conceptual remedial measures for these areas. The remedial grading for expansive and liquefiable soils identified in the preliminary plans for all the SOCTIIP build Alternatives was developed based on the general criterion that these types of soils, would have the potential to cause distress to pavement or structures, would be remediated to a depth that mitigates the concern. This remedial grading occurs within the defined disturbance limits for the SOCTIIP build Alternatives as shown on the detailed project maps in Appendix A. Final design studies will further locate, evaluate and provide design requirements to address these soils so that, at the completion of construction, the potential for damage related to soil collapse or expansion under the FEC-M and FEC-W Alternatives would be remote.

Considering the geologic conditions present, and the same design and construction assumptions, the remainder of the SOCTIIP build Alternatives will also have potential for adverse impacts related to collapsible and expansive soil. Each of the build Alternatives would include the same types of detailed study and remedial recommendations to address these soils as part of the final design and construction of those Alternatives. Therefore, similar to the FEC-M and FEC-W Alternatives, the potential for adverse impacts or damage along the alignments of the other build Alternatives related to collapsible and expansive soil would also be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not create facilities subject to collapsible and expansive soil. Therefore, the No Action Alternatives would not result in adverse impacts related to collapsible and expansive soil.

Trench Wall Stability

Trench wall stability will be ensured through final design for the selected SOCTIIP build Alternative. Final design, together with standard construction safety requirements, will be adhered to during construction of the selected SOCTIIP build Alternative. Therefore, potential hazards associated with trench wall stability will be avoided under all the build Alternatives.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not require any trenching. Therefore, the No Action Alternatives would not result in adverse impacts related to trench wall stability.

Erosion, Sedimentation and Flooding

Erosion of Graded Areas

The SOCTIIP build Alternatives will create new cut and fill slopes and other graded areas, which would be subject to erosion if not adequately controlled. Project design and construction will include features to protect slopes from erosion, so that at completion of construction, there would

be no net increase in erosion over natural conditions. Refer to Section 4.9 (Affected Environment, Impacts and Mitigation Measures Related to Water Quality).

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not be subject to erosion. Therefore, the No Action Alternatives would not result in any impacts related to erosion of graded areas.

Alteration of Runoff

The SOCTIIP build Alternatives will be designed and constructed so that runoff will be appropriately controlled and directed to be consistent with natural conditions. Refer to Section 4.9 for detailed discussion of issues related to runoff and runoff management.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not alter existing runoff in the study area. Therefore, the No Action Alternatives would not result in adverse impacts related to runoff.

Unprotected Drainage Ways

The SOCTIIP build Alternatives will be designed and constructed to include/incorporate evaluations and recommendations regarding flow in all drainage ways, and protective measures would be constructed where needed. As a result, there would be no adverse impacts of the SOCTIIP build Alternatives related to drainage ways.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not alter existing drainage ways in the study area. Therefore, the No Action Alternatives would not result in adverse impacts related to drainage ways.

Increased Impervious Surfaces

The SOCTIIP build Alternatives will include the construction of new pavement and various related structures, which will reduce the amount of natural ground surface over which percolation of rainfall and other surface water can occur. The total area of new pavement for the SOCTIIP build Alternatives is a relatively small fraction of the total surface area of the drainage basins in the study area. The following SOCTIIP build Alternatives will have an adverse impact with respect to an increase in water runoff due to the increase of impervious surfaces:

- FEC-W Alternative, 26 km (16 mi) of new pavement and related structures.
- FEC-M Alternative, 26 km (16 mi) of new pavement and related structures.
- CC Alternative, 19 km (11 mi) of new pavement and related structures.
- CC-ALPV Alternative, 14 km (9 mi) of new pavement and related structures.

- A7C-FEC-M Alternative, 26 km (16 mi) of new pavement and related structures.
- A7C-ALPV Alternative, 14 km (9 mi) of new pavement and related structures.
- AIO Alternative, slight increase in impervious surfaces.
- I-5 Alternative, slight increase in impervious surfaces.

For a detailed discussion on issues related to impervious surfaces, refer to Sections 4.8 and 4.9.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not alter any natural ground surface. Therefore, the No Action Alternatives would not result in adverse impacts related to impervious surfaces.

Land Subsidence

Extraction of Groundwater, Gas, Oil and Geothermal Energy

There are no known ongoing or planned large-scale extractions of groundwater, gas, oil or geothermal energy that could cause subsidence in the SOCTIIP area. Therefore, there would be no adverse impacts under the SOCTIIP build and No Action Alternatives related to land subsidence.

Hydrocompaction and Peat Oxidation

Final design and construction of the selected SOCTIIP build Alternative will provide for the removal and replacement of soils that are subject to hydrocompaction or that have substantial quantities of peat. Therefore, at the completion of construction, the potential for ground surface settlement due to hydrocompaction or peat oxidation under the selected SOCTIIP build Alternative would be remote.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not be subject to soils that contain hydrocompaction and peat oxidation. Therefore, the No Action Alternatives would not result in adverse impacts related to soils that are subject to hydrocompaction and peat oxidation.

Volcanic Hazards

Lava Flow

There are no active or potentially active volcanoes in the region of the SOCTIIP build Alternatives. Therefore, there would be no adverse impacts related to lava flow under the SOCTIIP build and No Action Alternatives.

Ash Fall

Potentially active volcanoes are sufficiently distant from the SOCTIIP project area that the SOCTIIP build and No Action Alternatives would not be subject to adverse impacts related to ash fall.

4.20.3.2 Long Term Impacts Related to Earth Resources

The long term impacts related to earth resources under the SOCTIIP build Alternatives would be the same as discussed in Section 4.20.3.1 (Construction Impacts Related to Earth Resources) as they relate to impervious surfaces. There would be no other long term impacts related to earth resources under the SOCTIIP build Alternatives. There would be no adverse long term impacts related to earth resources under the No Action Alternatives.

4.20.3.3 Summary of Impacts Related to Earth Resources

Table 4.20-3 summarizes the potential adverse impacts of the SOCTIIP build and No Action Alternatives related to earth resources.

4.20.4 MITIGATION MEASURES RELATED TO EARTH RESOURCES

Standard investigation, design and construction practices will be conducted and implemented for the selected Alternative, if a build Alternative is selected for implementation. A substantial amount of preliminary work has been conducted by the TCA, in part, to support the preparation of the Technical Report and the EIS/SEIR analysis related to earth resources. As a result of the initial studies and designs, many potential impacts related to earth resources have been identified and would be avoided or reduced based on standard design and construction techniques incorporated in the description of each Alternative. For example, existing landslides or potentially unstable slopes were identified, and recommendations have been provided for their treatment to obtain adequate stability when construction is complete.

Mitigation measures were provided in the Mitigation Monitoring Program (MMP) for Final Environmental Impact Report No. 3 (EIR No. 3) for the Foothill Transportation Corridor – Oso Parkway to Interstate 5, to minimize the impacts to earth resources identified for the alignments analyzed in that EIR. All the mitigation measures in the MMP for EIR No. 3 were reviewed and have been incorporated, as applicable, in the mitigation measures for the SOCTIIP Alternatives. Table 4.20-4 lists the mitigation measures from the MMP in EIR No. 3 and provides the proposed status for each measure. If the measure has been incorporated into a SOCTIIP mitigation measure, the new mitigation measure number is provided. In addition, Measure G-4 was added to address the typical construction phase quality assurance/quality control practice.

Measure G-1. Prior to final design for the selected Alternative, a design level geotechnical report will be prepared for the selected Alternative. This report will document potential soil-related constraints and hazards such as slope instability, settlement, liquefaction or related secondary seismic impacts that may be present. Acceptance of the report will be subject to

approval by the TCA and other agencies that may have jurisdiction. A minimum factor of safety of 1.5 shall be used to determine the final slope configuration. The report shall also include:

- Evaluation of potentially expansive soils and recommendations regarding construction procedures and/or design criteria to minimize the effect of these soils on the development of the corridor.

- The design level geotechnical studies will identify potentially liquefiable areas and provide recommendations for mitigation. Any areas that require mitigation would be within the disturbed areas, and no additional impacts would result.

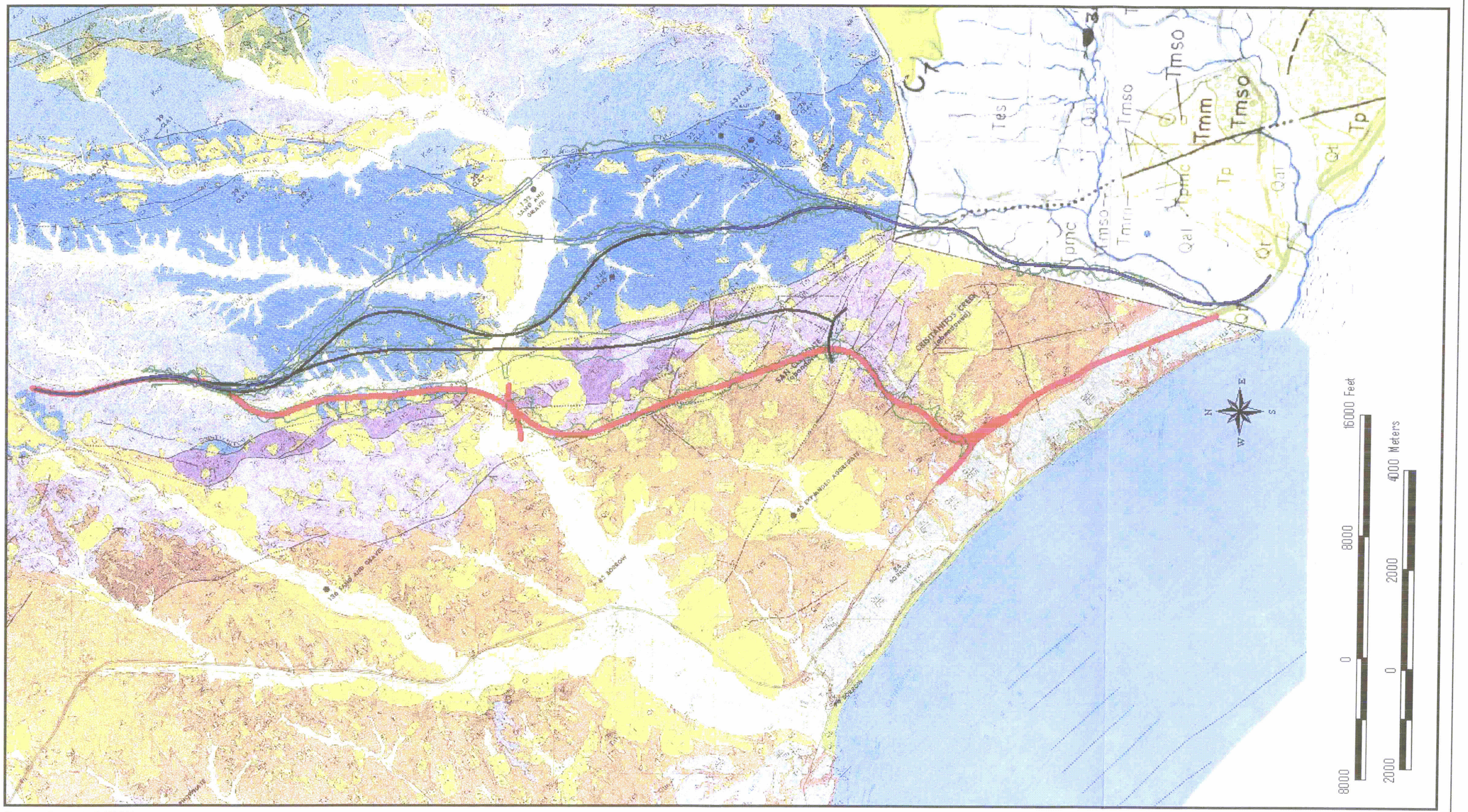
Measure G-2. In conjunction with final design, it will be demonstrated that side slopes shall be designed and graded so that the potential for surface erosion of the engineered fill is not increased from natural conditions.

Measure G-3. In conjunction with construction activity, native vegetation with good soil-binding characteristics and low water requirements will be planted on engineered slopes to reduce erosion and slope instability.

Measure G-4. A quality assurance/quality control plan will be maintained during construction. This will include observing, monitoring and testing by a geotechnical engineer and/or geologist during construction to confirm that geotechnical/geologic recommendations are fulfilled, or if different site conditions are encountered, appropriate changes are made to accommodate such issues.

Measure G-5. Once a final project alignment has been selected, a detailed review will be made to locate all groundwater wells within the project footprint. Any groundwater wells that occur within the project footprint will be abandoned properly during project construction. As may be required, (i.e., for active wells), the water supply provided by the well will be replaced. Replacement water may be provided by a variety of means, such as installing a new well or a connection to municipal supply.

Table 4.21-5 summarizes the applicability of each of these mitigation measures to each of the SOCTIIP Alternatives.



Source: Geopentech (2003).

Regional Geologic Map

Contacts
Queried where inferred

Faults
Dashed where approximately located, dotted where concealed, queried where conjectural. D: downthrown side. U: upthrown side. Arrow indicates dip of fault plane. Barbs are on upper plate of thrust faults.

Strike and dip of beds

Approximate or generalized strike and dip of beds

Strike and dip of overturned beds

Horizontal beds

Vertical beds

Anticlinal fold
Long arrow indicates direction of plunge

Synclinal fold
Long arrow indicates direction of plunge

Mud or debris flow path
Width not definable

Mud or debris flow path
Definable boundaries

Qac
Qtm
Qac thinly overlies Qtm

Prospect or mine
Pit

- Mineral producer, active in 1973
- Mineral producer, active one or more years 1953-1972.
- Mineral producer, active one or more years prior to 1953; inactive since 1953.
- Mineral deposit, prospect, or borrow pit. (This includes all deposits with no significant production or, in the case of borrow pits, contain low-value material, widely available).
- Limits of oil and gas fields (California Division of Oil and Gas, 1972).
- Quadrangle corner of U. S. Geological Survey 7½ minute maps

Landslides
Qls = Bedrock landslides
Qls = Probable bedrock landslides
Qls = Possible bedrock landslides

Qac Qb
Qac = Alluvium and colluvium
Qb = Beach sediments

Qt Qtm
Terrace deposits
Qt = Nonmarine terrace deposits
Qtm = Marine terrace deposits

Tn
Niguel Formation

Tcs Tct Tco
Capistrano Formation
Tcs = siltstone facies
Tct = turbidite facies
Tco = Oso Member

Tm
Monterey Formation

Tso
San Onofre Breccia

Ttp Tt Ttlt Ttb
Topanga Formation
Tt = Topanga Formation undifferentiated
Ttp = Paularino Member
Ttlt = Los Trancos Member
Ttb = Bommer Member

Tv
Vaqueros Formation

Ts
Sespe Formation

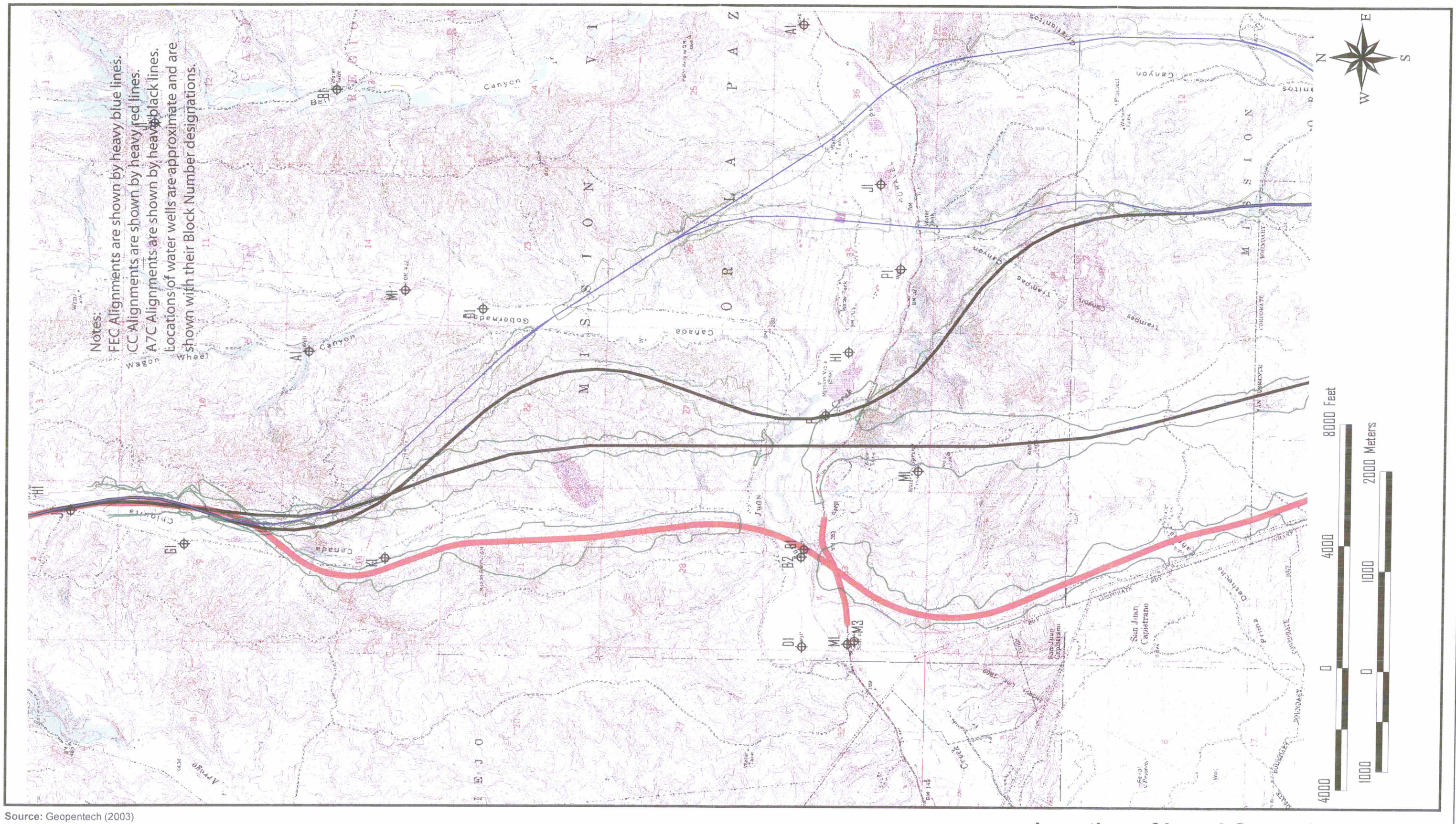
Tsa
Santiago Formation

Tsi
Silverado Formation

Kw Kwp Kws Kwst
Williams Formation
Kw = Williams Formation undifferentiated
Kwp = Pleasants Sandstone Member
Kws = Schulz Ranch Member
Kwst = Starr Member

Source: Geopentech (2003).

Legend of Symbols and Geologic Units for Regional Geologic Map

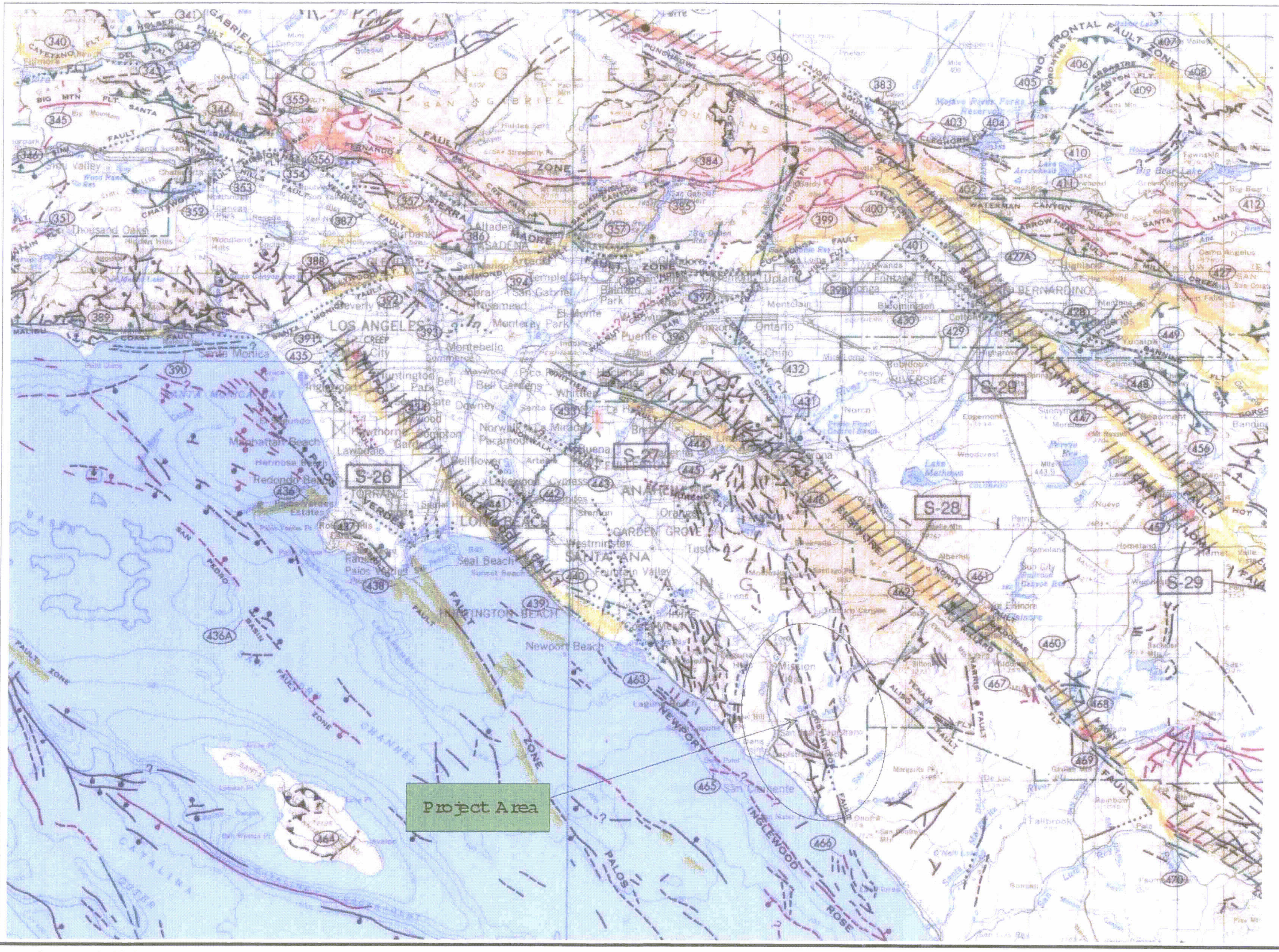


Source: Geopentech (2003)

Location of Local Groundwater Wells
North Half of Study Area

Source: Geopentech (2003)

Location of Local Groundwater Wells
South Half of Study Area



LEGEND

Faults; U = upthrown side, D = downthrown side, bar and ball on downthrown side, arrows along fault indicate relative direction of movement, arrow on fault indicates direction of dip, low angle fault indicated by barbs on upper plate.

Historic fault; displacement during the past 200 years.

Holocene fault; displacement during past 10,000 years, but not within the past 200 years.

Late Quaternary fault; displacement during past 700,000 years.

Quaternary fault; displacement during past 1.6 million years.

Pre-Quaternary fault; displacement older than past 1.6 million years.

Fault segment associated with a significant linear trend of accurately located earthquake epicenters.

Source: Geopentech (2003)

Regional Fault Map

TABLE 4.20-1
CRITERIA FOR GEOTECHNICAL, GEOLOGY AND SOILS IMPACTS

Geologic Resource	Issue	Impact of the SOCTIIP Alternatives on Earth Resources
Earthquake Damage	Fault Movement (including ground rupture, tsunami and seiche)	Would project development substantially alter the local / regional stress regime and possibly trigger fault movement?
	Liquefaction	Would project development alter subsurface conditions and result in a potential for liquefaction?
	Landslides	Would project development create or induce a potential for landsliding?
	Differential Compaction/Seismic Settlement	Would project development alter subsurface conditions and create a potential for settlement during seismic shaking?
	Ground Shaking	Would project development alter the local / regional stress regime and possibly trigger seismicity?
	Seismically-Induced Flooding (failure of dams and levees)	Does the project include the construction of a dam or levee that would have the potential to undergo an uncontrolled release as a result of seismic shaking, or would the project alter conditions at an existing reservoir and result in a potential for an uncontrolled release as a result of seismic shaking?
Waste Disposal Problems	Change in Groundwater Levels	Would project development result in lowering of groundwater levels?
	Disposal of Excavated Material	Would project development require the disposal of excavated material at environmentally sensitive areas?
	Percolation of Waste Material	Would project development result in the percolation of waste material?
Slope and/or Foundation Instability	Landslides and Mudflows	Would project development promote the occurrence of landslides or mudflows?
	Unstable Cut and Fill Slopes (including trench wall stability)	Would project development adversely alter existing cut and / or fill slopes, making them potentially unstable?
	Collapsible and Expansive Soil	Would project development trigger collapse or expansive soil behavior that would lead to a structural collapse or hazardous release?
Erosion, Sedimentation, Flooding	Erosion of Graded Areas	Would project development expose areas to erosion, and create potential impacts to other areas / projects?
	Alteration of Runoff	Would project development negatively alter existing runoff patterns?
	Unprotected Drainage Ways	Would project development include the creation of unprotected drainage ways?
	Increased Impervious Surfaces	Would project development result in a significant increase in impervious surfaces?
Land Subsidence	Extraction of Groundwater, Gas, Oil, Geothermal Energy	Could the project cause significant settlement?
	Hydrocompaction, Peat Oxidation	Would the project induce collapse behavior in peat-bearing soils or soils subject to hydrocollapse?
Volcanic Hazards	Lava Flow	Could the project trigger a lava flow?
	Ash Fall	Could the project trigger an ash fall?

Source: GeoPentech (2003).

TABLE 4.20-2
SUMMARY OF CUT, FILL AND REMEDIAL AMOUNTS FOR THE BUILD ALTERNATIVES

Corridor Alternative	Estimated Cut in 1000s of Cubic Meters (cubic yards)	Estimated Fill in Cubic Meters (cubic yards)	Total Net in Cubic Meters (cubic yards)	Remedial in Cubic Meters (cubic yards)
FAR EAST CORRIDOR ALIGNMENT ALTERNATIVES				
FEC-W-Initial	-12,771 (-16,704)	13,062 (17,085)	+292 (+382)	11,837 (15,483)
FEC-W-Ultimate	-14,993 (-19,610)	15,864 (20,750)	+871 (+1,139)	12,500 (16,350)
FEC-M-Initial	-14,307 (-18,714)	11,008 (14,398)	-3,299 (-4,315)	13,513 (17,675)
FEC-M-Ultimate	-16,732 (-21,885)	13,712 (17,935)	-3,019 (-3,949)	14,200 (18,574)
CENTRAL CORRIDOR ALIGNMENT ALTERNATIVES				
CC-Initial	-11,600 (-15,173)	8,900 (11,641)	-2,700 (-3,532)	31,100 (40,679)
CC-Ultimate	-19,400 (-25,375)	14,600 (19,097)	-4,800 (-6,278)	32,400 (42,379)
CC-ALPV-Initial	-6,700 (8,764)	7,000 (9,156)	+300 (+392)	28,600 (37,409)
CC-ALPV-Ultimate	-10,500 (-13,734)	10,800 (14,126)	+300 (+392)	29,500 (38,586)
ALIGNMENT 7 CORRIDOR ALIGNMENT ALTERNATIVES				
A7C-ALPV-Initial	-33,300 (-43,556)	33,800 (44,210)	+500 (+654)	27,500 (35,970)
A7C-ALPV-Ultimate	-34,500 (-45,124)	34,000 (44,470)	+1,700 (+2,224)	27,500 (35,970)
A7C-FEC-M-Initial	-12,149 (-15,891)	13,530 (17,697)	+1,380 (+1,805)	12,703 (16,616)
A7C-FEC-M-Ultimate	-14,192 (-18,563)	16,503 (21,586)	+2,310 (+3,021)	13,400 (17,527)
AIO Alternative	-4,800 (-6,278)	3,700 (4,840)	-1,100 (1,439)	11,200 (14,650)
I-5 Alternative	-6,600 (-8,633)	5,585 (7,300)	-4,400 (5,155)	4,400 (5,155)

Source: CDMG and TCA (2003).

TABLE 4.20-3
SUMMARY OF IMPACTS RELATED TO EARTH RESOURCES

Alternative	Fault Movement	Liquefaction	Landslides	Differential Compaction/ seismic settlement	Ground Rupture	Ground Shaking	Tsunami	Seiches	Flooding	Change in Groundwater Levels	Disposal of Excavated Material	Percolation of Waste Material
FEC-W	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	No impact.	No impact.
FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	No impact.	No impact.
CC	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material on CC-Ultimate only.	No impact.
CC-ALPV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	No impact.	No impact.
A7C-ALPV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels, replace existing water well and permanent groundwater lowering at a mapped spring.	No impact.	No impact.
A7C-FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	No impact.	No impact.
AIO	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	No impact.	No impact.
I-5	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material.	No impact.
No Project-OCP-2000	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
No Project-RMV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.

TABLE 4.20-3
SUMMARY OF IMPACTS RELATED TO EARTH RESOURCES

Alternative	Landslides and Mudflows	Unstable Cut and Fill Slopes	Collapsible and Expansive Soils	Trench Wall Stability	Erosion of Graded Areas	Alteration of Runoff	Unprotected Drainage Ways	Increased Impervious Surfaces	Extraction of Groundwater, gas, oil, geothermal energy	Hydrocompaction and peat oxidation	Lava Flow	Ash Fall
FEC-W	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
CC	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
CC-ALPV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
A7C-ALPV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
A7C-FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
AIO	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
I-5	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
No Project-OCP-2000	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
No-Project-RMV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.

Note: Page 2 of 2
Source: GeoPentech (2003).

TABLE 4.20-4
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO. 3

Mitigation Measures From EIR No. 3	Proposed Status
Measure 1 – Earth Resources. Prior to final design, the TCA shall prepare a geotechnical report. This report shall document potential soil-related constraints and hazards such as slope instability, settlement, liquefaction or related secondary seismic impacts where determined to be appropriate by the permitting agencies. All corrective work shall be in accordance with the state of the art seismic design criteria of the Structural Engineering Association of California and Caltrans Standard Specifications. A factor of safety of 1.5 shall be used to determine the final slope configuration. The report shall also include: - Evaluation of potentially expansive soils and recommended construction procedures and/or design criteria to minimize the effect of these soils on the development of the corridor. - Subsurface exploration and analysis in areas likely to have liquefaction potential and recommended engineering solutions.	This measure has been incorporated in current measure G-1.
Measure 2 – Earth Resources. In conjunction with final design, the TCA shall demonstrate that side slopes shall be graded to slope angles approximating adjacent natural slope angles to reduce potential for surface erosion of the engineered fill.	This measure has been incorporated in current measure G-2.
Measure 3 – Earth Resources. In conjunction with construction activity, vegetation with good soil-binding characteristics and low water requirements shall be planted on the engineered slopes to reduce erosion and slope instability.	This measure has been incorporated in current measure G-3.

Source: P&D Consultants (2003).

TABLE 4.21-5
SUMMARY OF THE APPLICABILITY OF THE MITIGATION MEASURES FOR EARTH RESOURCES BY ALTERNATIVE

Alternative	G-1	G-2	G-3	G-4	G-5
Corridor Alternatives					
A7C-ALPV	✓	✓	✓	✓	✓
A7C-FEC-M	✓	✓	✓	✓	✓
CC	✓	✓	✓	✓	✓
CC-ALPV	✓	✓	✓	✓	✓
FEC-W	✓	✓	✓	✓	✓
FEC-M	✓	✓	✓	✓	✓
Non-Corridor Alternatives					
AIO	✓	✓	✓	✓	✓
I-5	✓	✓	✓	✓	✓
No-Action Alternatives					
OCP-2000	--	--	--	--	--
RMV Development Plan	--	--	--	--	--

Notes: ✓= Mitigation measure applies to Alternative.
--= Mitigation measure does not apply to Alternative.
Source: GeoPentech (2003).

4.21 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION MEASURES RELATED TO MILITARY USES AND CAMP PENDLETON

4.21.1 OVERVIEW

Camp Pendleton is a unique entity in the SOCTIIP study area with highly specialized uses and unusual conditions focused on a singular mission, military training and combat preparation. Camp Pendleton is the Marine Corps' only amphibious training center for the west coast of the United States. With over 50,586 ha (125,000 ac) of land, 29 km (18 miles) of beaches, training areas, ranges and restricted airspace, Camp Pendleton is an irreplaceable military training installation. The impact assessment in this EIS/SEIR addresses the effects of the SOCTIIP Alternatives in the entire study area. Section 4.21 provides a separate discussion of the impacts of the SOCTIIP Alternatives specifically on Camp Pendleton and the Military Mission at the Base. This information is provided in this Section so the reader can see all the information related to Camp Pendleton in one location in this EIS/SEIR. The analysis in this Section evaluates the potential direct and indirect impacts of the SOCTIIP Alternatives on Camp Pendleton in terms of operations, infrastructure, public safety and security, and encroachment, as related to the Military Mission. Following that discussion, evaluation of the potential impacts of the SOCTIIP Alternatives related to the remaining environmental parameters (air quality, noise, etc.) are summarized specifically as they relate to Camp Pendleton.

The following SOCTIIP build Alternatives are in the study area for potential impacts on Camp Pendleton:

- Far East Corridor-West Alternative.
- Far East Corridor-Modified Alternative.
- Alignment 7 Corridor-Far East Crossover-Modified Alternative.
- Central Corridor-Complete Alternative.
- Interstate 5 (I-5) Widening Alternative.

Figures 4.21-1, 4.21-2 and 4.21-3 show the alignments of these Alternatives in and the major land uses on the north part of Camp Pendleton. In addition to these build Alternatives, the two No Action Alternatives are also analyzed in this Section. All figures and tables cited in this Section are provided following the last page of text in this Section.

4.21.2 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION RELATED TO THE MILITARY MISSION

The potential impacts of the SOCTIIP Alternatives on the Military Mission at Camp Pendleton are evaluated in detail in the "Military Impacts Technical Report" (P&D Consultants, 2003) and are summarized in the following Section. The full technical report is available for review during regular business hours at the TCA office.

4.21.2.1 Military Mission

The Mission of Camp Pendleton is to "...operate an amphibious training base that promotes the combat readiness of operating forces by providing facilities, services, and support responsive to the needs of Marines, Sailors and their families." (Camp Pendleton Strategic Plan 2002, December 2001, at pg. 4). Camp Pendleton is the Marine Corps' premier amphibious training base and its only West Coast amphibious assault training center. Approximately 40,000 training events are scheduled at Camp Pendleton each year. These range from small unit training to Regimental and Marine Expeditionary Brigade (MEB) exercises. Nearly 60,000 personnel train at Camp Pendleton every year. Camp Pendleton provides training facilities for many active duty and reserve Marine, Navy, Army, Air Force and National Guard units, as well as other national, state and local agencies.

The Camp Pendleton land and airspace areas were established by Congressional and other federal actions to provide for the segregation and containment of military training activities considered to be of a hazardous or near-hazardous nature. Designation of these special use land and airspace areas has two substantial benefits (Marine Corps Strategy 21, http://www.cpp.usmc.mil/; click on "Publications"):

- Military training can occur in the realistic and relatively unimpeded manner required for an effective national defense.

- The safety of the public and military personnel is simultaneously protected.

The most vital assets on the Base are those that directly support the military training mission of Camp Pendleton. These assets, ground training areas, amphibious training areas, firing ranges and special use airspace are described in detail later in this Section.

Significance of the Marine Corps Training Mission

Camp Pendleton trains Marines to meet the Marine Corps Mission as described in the Marine Corps Strategy 21. The challenge to the Marine Corps is to maintain and upgrade the capability to effectively train Marines in all elements of ground, amphibious and aviation-related warfare and combat readiness.

The task of maintaining such a capability is an ongoing effort as facilities and procedures must be continually evaluated to ensure that the Marine training is commensurate with the skills the Marines will require to meet and defeat any potential hostile challenges to the nation's security and vital interests. Requirements to reevaluate the capacity of Camp Pendleton resources and procedures to meet these training objectives may be induced by events such as changes in potential adversaries or the capabilities of those adversaries, technological advancements or organizational restructuring in the United States Department of Defense (DoD).

The list of potential crisis locations in the world that could lead to an engagement of Marine Corps troops is constantly changing as demonstrated by the 2003 Iraq War, recent Bosnian peacekeeping action, the Persian Gulf War, continuing conflicts in the Persian Gulf, other Middle East developments, ongoing turmoil in the former Yugoslavia, Somalia rescue operations, periodic

rumblings from the Korean peninsula and the recent action in Afghanistan. In each of these situations, the challenges facing Marines vary substantially depending on the weapons and training of the adversary, physiographic and climatic conditions of the crisis location, political realities, rules of engagement and other factors. In each case, adoption of appropriate tactics is necessary if Marines are to survive and successfully complete the mission. The training resources of Camp Pendleton must be able to support development and implementation of the tactics necessary to prevail in all such potential crisis situations.

Combat tactics also evolve as a result of technological advancements in aircraft, ground equipment, sea-going vessels; weapons systems; electronic warfare; and command, communication and control capabilities. Camp Pendleton training resources and procedures must evolve as necessary, if the advantages of technological change are to be realized and maintained.

The United States military is currently involved in a period of substantial restructuring. These changes include downsizing the active duty armed services personnel, increasing the involvement of armed services reserve personnel, base realignment and closure (BRAC) actions, and shifts in defense missions and doctrines. While some bases, training facilities and military units have been or will be decommissioned, use of retained bases and facilities is increasing and intensifying as the remaining military units are consolidated at the locations best suited for maintaining a leaner, but highly prepared, military force. Camp Pendleton is a military base that is experiencing growth as a result of other BRAC actions. While the full implications of ongoing changes for Camp Pendleton are yet to be determined, two consequences are clear. First, Camp Pendleton will continue to be the amphibious training center for the West Coast, and will have continued responsibility to effectively train Marines in all elements of combat readiness. Second, flexibility in the training capabilities and capacities of Camp Pendleton will continue to be of vital importance to successfully accommodate emerging changes in the national defense Mission and military structure.

To accomplish national security missions, Marines and other DoD personnel must be trained in all requirements for responding to national security threats. Training activities at Camp Pendleton include, but are not limited to, amphibious landings; use of tracked vehicles, infantry and vehicle maneuvers; artillery, mortar and small arms firing; aerial weapons delivery; laser operations; engineer support operations; logistics support; field combat service support; communications; airlift support for troops and weapons; equipment maintenance and field medical treatment.

Emerging Issues Specific to Camp Pendleton

In the Master Plan (April 1993), the Marine Corps identified the need to update or upgrade various range resources, aviation facilities, and operations and training procedures at Camp Pendleton to facilitate changing training requirements and to accommodate anticipated growth brought about through military restructuring. Emerging and identified issues that indicate the need to modify and improve the military training environment are:

- Increased emphasis on night aviation training and the use of night vision goggles.
- Development of new ground and aviation combat doctrine.

- Increased emphasis on Homeland Security and Force Protection.
- Correction of deficiencies in existing Camp Pendleton training procedures or facilities.
- Redistribution of Marine Corps Missions and functions to compensate for the recent drawdown of Marine Corps assets.
- Increased emphasis on the training and retention of reserve units.
- Increased training in the Marine Corps' growing role in civil peace keeping action operations.
- Effects of future DoD base closure actions on Camp Pendleton.

Applicable Plans, Programs and Policies

The following documents provided background information used in the evaluation of the potential impacts of the SOCTIIP Alternatives on the Camp Pendleton Military Mission and its land use and training operations:

- Camp Pendleton Master Plan Volumes I (Base Wide Analysis) and II (Area Plans) (April 1993).
- Camp Pendleton Range Compatible Use Zone (RCUZ) Program (1993).
- Camp Pendleton Land and Training Area Requirements (LATAR) Study (1988).
- Camp Pendleton Range and Training Regulations (2002).
- Final Integrated Natural Resources Management Plan for MCB and MCAS Camp Pendleton (October 2001).
- Marine Corps Strategy 21 (http://www.cpp.usmc.mil/; click on "publications").
- Pendleton 2020 (P2020) Charter.
- The Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 which specifically states that an easement would be granted based on a survey satisfactory to the Secretary of the Navy, and on the Secretary's consideration of the protection of the interests of the United States (Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, Conference Report to Accompany H.R. 3616 Hse. Rpt. 105-736, September 23, 1998).

4.21.2.2 Affected Environment Related To Military Uses

The study area for potential impacts of these Alternatives is defined as the area within three kilometers (km, 1.9 miles (mi) of their centerlines as shown on Figures 4.21-1 to 4.21-3. The distance of three km (1.9 mi) with one km (0.6 mi) intervals was agreed to by Camp Pendleton as a reasonable distance for the impact evaluation. In and adjacent to this study area, there are six heavily used training areas, five artillery firing areas, one para-drop zone, one Helicopter Outlying Landing Field (HOLF), one helicopter heavy lift pad, numerous live-fire ranges, Green Beach which is used to support amphibious landing exercises, and the northwestern most maneuver corridor capable of supporting battalion-sized training exercises. Part of the study area for the SOCTIIP Alternatives underlies one of Camp Pendleton's most vital assets: its special use airspace (SUA), which includes Restricted Areas R-2503A, R-2503B and the San Onofre High and Low Military Operations Areas (MOAs) as shown on Figure 4.21-4. The type of training conducted by military personnel at Camp Pendleton is critical to the development of individual and unit combat skills, and the essential teamwork capabilities that are required for a Marine Air/Ground Task Force (MAGTF) to be successful on the battlefield. (Marine Corps Strategy 21, http://www.cpp.usmc.mil/; click on "Publications"). The existing and planned land use and activities on the north part of Camp Pendleton are described in the following Sections.

<u>Aircraft and Airspace Regulation</u>

Special Use Airspace

The SUA establishes the protective airspace necessary to support live-fire ranges, para-drop zones, artillery firing areas and other military training operations that occur daily on the Base in the SOCTIIP study area. The SUA also supports primary entry points for military aircraft, mostly helicopters, which may enter Camp Pendleton from the north from locations such as the Armed Forces Reserve Training Center at Los Alamitos in north Orange County. SUA is established by the Federal Aviation Administration (FAA) to contain or segregate activities that would be hazardous to other non-participating aircraft. SUA horizontal boundaries for R-2503A and R2503B are shown in Figures 4.21-1 to 4.21-3. Figure 4.21-4 shows the limits and components of the SUA at Camp Pendleton. In addition the Marine Corps Air Station (MCAS), Camp Pendleton also has an Air Installation Compatibility Use Zone as required by the DOD, but it is on the southern end of the Base and does not affect the SOCTIIP study area.

Range Compatible Use Zones

In addition to SUA, Camp Pendleton has established a Range Compatible Use Zone (RCUZ) program which provides both a method and strategy to assist in the protection of the Base's training missions from incompatible land uses and activities. The RCUZ program provides information and guidance for compatible land uses as they relate to noise and safety hazards generated by the Base's military training activities. The purpose of the RCUZ program is to achieve and maintain, to the extent possible, compatible land uses both on-base and within surrounding community areas adjacent to the base boundary as they relate to noise and safety hazards generated by Camp Pendleton's military training activities. The major elements of the RCUZ program are noise and safety. Noise and safety zones were developed from data gathered

by a review of Base's ground, aviation and amphibious training activities as were occurring in the early 1990s. The RCUZ program for Camp Pendleton was published in 1993.

The RCUZ program provides guidelines to be applied in concert with other land use programs, for best land use practices based on determination of potential noise and safety impacts. For the SOCTIIP study area, RCUZ Safety Zones D and E, shown in Figure 4.21-5, apply. Safety Zone D represents unit maneuver areas available for tactical exercises and field training. Safety Zone E encompasses the Base's primary aircraft overflight corridors specifically designed for aviation activities. Although aviation overflight is authorized throughout the Base, Safety Zone E includes those areas most frequently utilized by aircraft entering/departing the ranges or operating on low altitude navigation training flights. RCUZ Noise Zone 1 also applies to the SOCTIIP study area. Noise Zone 1 includes base areas where the noise level is 65 dBA and below for transportation noise or 62 dBA and below for impulsive noise (resulting from armor, artillery and demolition activities).

Aviation Training Activities

Existing Aviation Training Activities

Aviation training activities in the study area are supported by four Confined Area Landing (CAL) sites, a HOLF, a helicopter heavy-lift training pad, three aircraft landing zones and a parachute drop zone. In the study area, Marine aircrews also conduct low altitude flight operations and night vision goggle aviation training. The study area lies directly under heavily used fixed-wing aircraft Close Air Support (CAS) entry/exit routes. Figure 4.21-6 shows the aviation operations airspace and Figure 4.21-7 shows the aviation training areas and facilities for Camp Pendleton.

Helicopter Outlying Landing Field (HOLF)

There is a HOLF five km (three mi) from the FEC-W and FEC-M Alternatives at the east edge of training area Bravo Two. Operation of the HOLF is necessary to supplement Camp Pendleton's existing air station facilities which have become overburdened with the assignment of three new squadrons of CH-46 medium-lift helicopters. The HOLF also supports low-ambient-light night vision goggle training for helicopter aircrews. This HOLF, which has only been operational for two years, was planned and needed in part as a result of other Base closures and reassignment of resources to Camp Pendleton.

Military Ground and Amphibious Training Activities

A major training asset of Camp Pendleton is its large expanse of undeveloped land and coastline. The land area encompasses a wide variety of terrain from beaches at sea level to mountains of 792 meters (m, 2,600 feet (ft), and is primarily characterized by natural landscapes and vistas. Over 46,134 ha (114,000 ac), or approximately 91 percent of Camp Pendleton's land area, is dedicated to training activities such as Impact Areas and Training (maneuver) Areas that support combat readiness training activities in natural landscapes. Figure 4.21-8 shows the ground training operations areas on Camp Pendleton.

The study area for the military impacts was defined as the area within three km (1.9 mi) of the centerlines of the SOCTIIP Alternatives. In the SOCTIIP study area, approximately 20,000 Marines undergo training annually at the School of Infantry in the San Onofre cantonment area. Approximately 4,700 Marines are housed in the San Mateo cantonment area. Hundreds of Naval medical personnel train at the Fleet Hospital Operations and Training Command (FHOTC) located in the Cristianitos cantonment area. Each year between 20,000 and 25,000 reservists drill annually at the Camp Talega cantonment area. Figures 4.21-1 to 4.21-3 define the SOCTIIP study area and show these cantonment areas (Camp Talega, Camp San Mateo, etc.), training areas (Bravo Two, Alpha Three, etc.), ranges and SUA.

The types of ground training conducted in the SOCTIIP study area include offensive and defensive combat training and maneuvers, land navigation, patrolling, conditioning hikes, minefield breaching, simulated Tactical Recovery of Aircraft/Personnel (TRAP) operations and other critical combat readiness training activities. The training areas in the study area also support battalion-sized maneuver warfare training exercises characterized by mobile, well-dispersed units. Marine Corps units typically begin their exercises with an amphibious landing on one of Camp Pendleton's beach areas. After crossing the artificial barrier created by I-5, units typically engage in a combination of live-fire exercises and maneuver training exercises to advance inland toward ultimate objective areas established in the interior parts of Camp Pendleton. The terrain of the Talega Canyon and San Mateo Canyon areas represent two of the best routes for units to use in advancing through the northwestern maneuver corridor.

Live-fire training activities occur at five Artillery Firing Areas (AFAs) and six ranges in the study area. AFAs 3, 4, 6, 7 and H are the only firing areas available for live-fire artillery in the northwestern part of the Base. These AFAs are shown on Figure 4.21-8. The six ranges include an infiltration range, demolition range, live-fire small arms and machine gun range, known distance pistol range, small arms field firing range and a hand grenade range.

Amphibious training operations are currently conducted five to ten times a year at Green Beach. The ingress/egress point for Green Beach and interior training areas is through the same access used by users of the military recreational beach facilities at San Onofre Beach.

Cantonment Areas

Three cantonment areas and the military recreational beach facilities at Green Beach are in the SOCTIIP study area. A cantonment area is defined as an identifiable developed area containing troop support facilities to accommodate military personnel and to support the Base Mission. The cantonment areas in the study area are Camps Talega, Cristianitos and San Mateo, as shown on Figures 4.21-1 to 4.21-3 and as described below.

Camp Talega - Total Force Command

Current Uses at Camp Talega. Camp Talega, also known as the 64 Area, is in the northwest corner of Camp Pendleton. Most of the Talega cantonment area lies within one km (0.62 mi) of the centerline of the FEC-W, FEC-M, and A7C-FEC-M Alternatives. Camp Talega is the only

portion of Camp Pendleton that lies within the County of Orange, but it is subject to regulation, oversight and authority by the DON. Camp Talega supports the housing, messing and training requirements of reserve units. The surrounding ranges and training areas are used for individual and unit training.

Camp Talega is characterized by World War II era Quonset huts, and has experienced little change since the 1940s. Camp Talega consists of 67 Quonset huts, one motor pool facility, one maintenance shop, four maintenance bays, one dining facility, five warehouses, four parking lots, one armory, one loading ramp, one physical training field, one MCCS Club and two basketball courts. Access to Camp Talega is from Cristianitos Road.

Camp Talega is currently occupied by the Total Force Command (TFC, formerly the Reserve Support Unit) and the Mobilization Processing Center (MPC). Each year, between 16,000 and 20,000 reservists of the TFC from all services conduct annual training at Camp Pendleton. These TFC units are typically housed in facilities at Camp Talega. The TFC personnel use many of the same training areas and firing ranges as the active duty forces.

The TFC is responsible for providing Base services to reserve units that use Camp Pendleton for training. These services include housing of personnel, messing, transportation, coordination of the use of ranges with Range Operations Division, allocation of ammunition and other support services.

The Marine Corps is currently implementing a Service Life Extension Program (SLEP) for approximately 200 of its light armored vehicles (LAVs), at Camp Talega using a team composed of approximately 12 civilian contractor personnel augmented by several military personnel. An additional new activity has been implemented at Camp Talega. This is the Mobilization Support Battalion (MSB) which is a new activity under the Global War on Terrorism (GWOT). The primary function of the MSB is to process in and out all Reserves and Reserve units that have been activated since the GWOT was initiated and for the 2003 war in Iraq.

Planned Uses at Camp Talega. A Regional Tactical Training Center for the TFC is planned for Camp Talega. The downsizing of the military has necessitated an increased dependency on TFC activities. This Regional Center would allow for improved and increased training of high concentrations of TFC units in southern California.

Camp Talega is undergoing complete redevelopment. Although there are no funds approved for the redevelopment at this time, the Quonset hut facilities utility infrastructure will be improved and in most cases will be replaced within the next three to four years. The construction of these facilities would require the demolition of approximately 40 existing structures. The project was given site approval by the Commandant of the Marine Corps and was authorized to proceed with design in 1990. The project was placed on hold due to budgetary concerns. However, it is designated as a Priority One project for the 4th Marine Division in New Orleans, Louisiana, and will be funded as soon as money becomes available.

Camp Cristianitos - Fleet Hospital Operations and Training Command

Current Uses at Camp Cristianitos. Camp Cristianitos, also known as the 63 Area, is near the northwest boundary of Camp Pendleton, along Cristianitos Road and adjacent to the San Onofre State Beach lease boundary. This entire cantonment area is within one km (0.62 mi) of the centerlines of the FEC-W, FEC-M and A7C-FEC-M Alternatives. The main entrance to Camp Cristianitos is from Cristianitos Road which runs the length of the cantonment area.

Camp Cristianitos is occupied by the Fleet Hospital Operations and Training Command (FHOTC). The Cristianitos cantonment supports between 13 and 14 two-week training classes per year, with students housed in temporary facilities in Camp Cristianitos. The area consists of approximately 23 facilities. Most are semi-permanent facilities for FHOTC administration, storage and student berthing. Permanent facilities include an Officers Club, Staff Non-Commissioned Officer's (NCO) Club and Fire Station No. 8, one of ten Camp Pendleton fire stations. Southwest of the Cristianitos cantonment area, there is a modern marker in honor of the Franciscan friars who conducted the first two baptisms in California in 1769.

The Cristianitos cantonment area supports the FHOTC, whose mission is to provide training for the layout, assembly, operations and disassembly of fleet hospitals by student personnel. A 1,395 sm (15,000 sf) expansion of the FHOTC is currently under construction. Large, flat expanses of land are available to accommodate set up and disassembly of a semi-permanent tent-like hospital encampment. Students are housed in semi-permanent structures that are assembled on site as part of the training. Personnel are trained in the assembly and operation of deployable fleet hospitals at Camp Cristianitos. All training, with the exception of physical conditioning, is conducted in the Cristianitos cantonment area. The operation of FHOTC does not require the use of live-fire ranges or training areas.

Planned Uses at Camp Cristianitos. There are no future planned uses for Camp Cristianitos except for the hospital construction and sewer maintenance and repair.

Camp San Mateo - Fifth Marine Regiment

Current Uses at Camp San Mateo. Camp San Mateo, also known as the 62 Area, is in the coastal hills at the north end of Camp Pendleton. This cantonment area lies between one and three km (0.62 and 1.86 mi) of the centerline of the FEC-W, FEC-M and A7C-FEC-M Alternatives. The primary access to Camp San Mateo base is via Cristianitos Road and the Cristianitos Gate. Interior Base circulation and access is provided from San Mateo Canyon Road, the only east-west access road in the north part of Camp Pendleton.

Camp San Mateo is currently occupied by the 5th Marine Regiment (4,000 military personnel) and 1st Combat Engineer Battalion (700 military personnel). The facilities in the San Mateo Area are in clusters with open areas separating the developed areas and a creek bed that parallels San Mateo Canyon Road to the south. Most of the development is linear, along San Mateo Canyon Road. Secondary roads separate barracks/support complexes. The San Mateo area is bounded by steep slopes to the north and a floodplain to the south. There are over 105 facilities

in the San Mateo area. The majority of these are permanently constructed barracks and troop support facilities.

Camp San Mateo is the Regimental headquarters for the 5th Marine Regiment. Land uses in this area are dominated by barracks and support facilities for messing, administration, storage and recreational facilities. The housing requirement in Camp San Mateo is for 3,729 personnel (San Mateo BEQ Requirement Worksheet, September 2002). Three of the four battalions of the 5th Marine Regiment, and one of only two active duty combat engineer battalions in the Marine Corps, the 1st Combat Engineer Battalion, are located at Camp San Mateo. Both the 5th Marine Regiment and the 1st Combat Engineer Battalion extensively use the training ranges and live-fire ranges which are in proximity to Camp San Mateo. The training conducted by the 5th Marine Regiment includes offensive and defensive combat training and maneuvers, land navigation, patrolling, conditioning hikes, minefield breaching, simulated TRAP operations, helicopter insertion operations, special purpose insertion/extraction (SPIE) operations and other critical combat readiness training activities. The 1st Combat Engineer Battalion trains in the use of explosives to eliminate obstacles encountered on the battlefield, the construction of delaying obstacles for opposing forces and other combat engineer training within their capabilities.

Of the training areas and live-fire ranges in the SOCTIIP study area, Camp San Mateo is within two km (1.2 mi) of three artillery firing areas, within four km (2.5 mi) of the live-fire ranges in the study area and within four km (2.5 mi) of both the hand grenade ranges.

There are eight training areas within 6.5 km (4.0 mi) of Camp San Mateo. Two of the training areas, Bravo Two and Bravo Three, are adjacent to this cantonment area. The mountainous and rolling terrain of Bravo Two is ideally suited for troop training. Bravo Two is within one km (0.62 mi) of the centerlines of the FEC-W, FEC-M and A7C-FEC-M Alternatives.

Planned Uses at Camp San Mateo. Camp San Mateo, with its proximity to training areas and live-fire ranges, is planned to remain an infantry regiment cantonment area. Two Bachelor Enlisted Quarters (BEQs) totaling 800 spaces (400 spaces each) are scheduled for construction. One 400 space BEQ will be completed by mid FY 2004 and the other is expected to be completed by FY 2006. A third BEQ with 640 spaces will be constructed prior to 2010. A Combat Breacher Vehicle facility is scheduled for construction in FY 2005. Additional planned but longer ranged projects include a new fire station (P-575, FY 2011), an armory and mini-exchange store and a supply warehouse. A variety of infrastructure repair and maintenance projects is scheduled for the area.

Ground Training Areas

Camp Pendleton has designated training areas to support tactical air/ground exercises and individual/unit field training. Generally, ground training activities include offensive and defensive combat training and maneuvers; land navigation; patrolling; conditioning hikes; minefield breaching; the use of pyrotechnics, demolitions and booby traps; and other combat readiness training activities. There are three training areas in the SOCTIIP study area: Bravo Two, Bravo Three and Alpha Two. San Mateo Canyon and the San Mateo cantonment area effectively divide Bravo Two from Bravo Three. Alpha Two is adjacent to the beach and can be

reached by the use of underpasses beneath I-5. Details of the training activity occurring in each of the training areas including frequency, duration and intensity, are available from Camp Pendleton, Assistant Chief of Staff, Operations and Training. These training areas and live-fire ranges are shown on Figures 4.21-1 to 4.21-3.

Bravo Two

Bravo Two training area is comprised of 1,070 ha (2,644 ac) of mountainous and rolling hill terrain. Bravo Two contains one para-drop zone and three CAL sites, four AFAs, one HOLF, one helicopter heavy lift pad and two radio towers. There are no live-fire ranges in Bravo Two. Of the three training areas described in this EIS/SEIR, Bravo Two is the most frequently used, with multiple users engaged in training activities on any given day.

Bravo Three

Bravo Three, approximately 1,560 ha (3,855 ac) of mostly mountainous terrain, is used primarily for small unit infantry tactics. The training area contains one CAL site, Range 300 and a mechanized assault course and a rappel tower. Range 300 is a short-range zeroing range. The allowable weapons are rifles, shotguns, pistols, M-24OG machine guns and squad automatic weapons (SAWs).

Alpha Two

Alpha Two training area, approximately 972 ha (2,402 ac) of mountainous terrain, includes part of the Area 52 Combat Town, and Ranges 200 and 207A. Range 200 is an infiltration range. Ancillary facilities include a control tower, machine gun simulators and controlled demolitions. Range 207A is a demolition range, the only one of its type in this part of Camp Pendleton.

Amphibious Training Areas

The majority of amphibious assault training occurs at Red Beach outside the SOCTIIP study area. However, some amphibious training activities occur at Green Beach which is within one km (0.62 mi) of the centerlines of the FEC-W, FEC-M and A7C-FEC-M Alternatives. Access to the interior training areas of the Base from the beaches is restricted by I-5 and a railroad easement. Eleven points along the coastal beaches of Camp Pendleton allow troops to cross under I-5 to enter the training and maneuver areas on the inland side of I-5. Three of these points are within one km (0.62 mi) of the centerline of the FEC-W, FEC-M and A7C-FEC-M Alternatives. The most frequently used access/egress point in the SOCTIIP study area is at Green Beach shown on Figures 4.21-1 to 4.21-3.

Green Beach

Green Beach provides 14 ha (35 ac) of beach area with a direct ingress/egress route to the balance of the Base in support of Fleet and Marine Expeditionary Force (MEF) exercises. Amphibious training operations are currently conducted five to ten times per year at Green Beach. It is anticipated that the north part of the Base will experience an increase in training

activities due to growth associated with base realignment actions. The ingress/egress point for Green Beach and interior training areas is through the same access used by users of the military recreational beach facilities at San Onofre Beach.

Planned Landing Craft Air Cushioned Inland Access Corridor

Green Beach has been proposed as an access corridor for the Navy's Landing Craft Air Cushioned (LCAC) vessel (Reference Department of the Navy, Commanding Officer, Assault Craft Unit 5 letter 32 1 0, April 14, 1992). The LCAC is a large craft designed to transport equipment, personnel and weapons systems from ships located beyond the horizon at sea, through the surf zone, across the beach to hard landing points beyond the waterline. Inland operations and maneuvering of the LCAC is a major training objective in the LCAC operations training curriculum. However, no inland LCAC training sites are currently accessible at Camp Pendleton. Construction of an access corridor from Green Beach, under I-5 at the San Mateo Creek bridge, to land area in the San Mateo Valley is being considered and evaluated by the DON for its engineering feasibility.

Special Use Airspace and Aviation Training Facilities

Camp Pendleton provides a capability for both the independent training of components of the Aviation Combat Element (ACE), and integrated training of air and ground forces. Functions provided by the ACE include air reconnaissance, anti-air warfare, assault support, offensive air support, electronic warfare and control of aircraft.

Existing Airspace Structure

Approximately 622 square kilometers (km^2) (240 square mi) of SUA overlie most of Camp Pendleton's landmass. This SUA includes Restricted Areas R-2503A, R-2503B and R-2053C, the San Onofre High and San Onofre Low MOAs, and two Controlled Firing Areas (CFA-1 and CFA-4). All of Camp Pendleton's SUA is shown on Figure 4.21-4, which also includes a 3D depiction of the locations and relationships of each of these airspace areas to one another. Only parts of R-2305A and the San Onofre High and Low MOAs overly the SOCTIIP study area, as shown on Figures 4.21-1 to 4.21-3. Restricted Area R-2503A is designated from the ground surface to 609.6 m (2,000 ft) above mean sea level (MSL) along the coast from the City of San Clemente to the Santa Margarita River area of Camp Pendleton. Restricted Area R-2503A extends from 1.62 km (one mi) offshore to 4.83 km (three mi) inland from the coast. The authorized hours of operation of R-2503A are 6:00 AM to 12 midnight (local) daily, seven days per week and at other times by a properly published Notice to Airmen (NOTAM). The San Onofre Low MOA overlies R-2503A at an altitude of 609.6 to 1,219.2 m (2,000 to 4,000 ft) above MSL and extends offshore for a distance of three nautical miles from the Camp Pendleton coastline. The San Onofre High MOA overlies the San Onofre Low MOA at an altitude of approximately 1,219.2 to 2,440 m (4,000 to 8,000 ft) above MSL, but the west edge of the High MOA only extends to the outer (western) edge of I-5. The San Onofre High and Low MOAs are activated and used as necessary to support Camp Pendleton's amphibious training operations. Activation of either of these MOAs requires advance coordination with the FAA.

Typical Airspace Utilization

Military helicopters typically enter Camp Pendleton airspace at the northern, southern and western boundaries of the airspace, and at altitudes between 304.6 to 609.6 m (1,000 to 2,000 ft) above ground level (AGL). A number of California Air Guard and United States Army Reserve helicopters frequently use the restricted airspace above Camp Pendleton on weekends. These aircraft, arriving from Los Alamitos Army Airfield, enter the airspace along the coastline in the vicinity of the San Onofre State Beach. Rotary wing aircraft (UH-1, AH-1, CH-46 and CH-53) originating from MCAS Camp Pendleton and MCAS Miramar also use this airspace. A variety of fixed-wing aircraft including F/A-18 and AV-8 attack aircraft overfly this part of the Base in conjunction with CAS training missions.

Aviation Facilities

Aviation facilities at Camp Pendleton include:

- Helicopter Landing Zones (LZ). Helicopter LZs are administrative landing zones used for medical evacuations, visitors, command and routine administrative flights. LZs 62, 63 and 64 are in the SOCTIIP study area.

- Confined Area Landing (CAL) Sites. CAL sites are designated areas of confined space used for helicopter pilot training and landing practice. CAL sites 13, 14, 15 and 16 are in the SOCTIIP study area.

- Drop Zone (DZ). DZs are used for parachute and paratroop operations including dropping or releasing of personnel, cargo, vehicles, illumination or any other items from an aircraft for descent to the ground. The San Mateo DZ is in the SOCTIIP study area.

- Heavy Lift Zone (HLZ). HLZs are used for helicopter pilot training in the lifting of heavy objects using external slings. One HLZ is located in the SOCTIIP study area.

Aviation-Related Realignments and Planned Facilities

As a result of decisions of the 1995 BRAC Commission, aircraft loading at MCAS Camp Pendleton has increased to a total of eight squadrons and 180 helicopters. Three squadrons of CH-46 medium-lift helicopters, previously based at MCAS Tustin and MCAS El Toro relocated to MCAS Camp Pendleton, which resulted in an increased amount of aircraft flight operations and pilot training activities at Camp Pendleton. To accommodate the increased aircraft loading, a HOLF was constructed five km (three mi) from the centerlines of the FEC-W, FEC-M and A7C-FEC-M Alternatives. The HOLF site is at the former site of Range 313A but is not in the SOCTIIP study area. The HOLF contains two parallel 915 m (3,000 ft) runways (one hard surfaced and one mowed grass) and other limited airfield support facilities, including on site expeditionary refueling, aircraft parking apron, and a crash, fire and rescue capability. The HOLF is used for day and night flight operations. This facility can generate up to 430 flight operations per day.

Family Housing Areas

Figures 4.21-1 to 4.21-3 show Base family housing in the SOCTIIP study area which includes San Mateo Point, San Onofre 1 and 2 and the Mobile Home Park. All Camp Pendleton's north base family housing assets are within two km (1.2 mi) of the centerline of the FEC-W, FEC-M and A7C-FEC-M Alternatives and within three km (1.9 mi) of the I-5 Alternative. Approximately 4,738 Marines and their dependents reside in these family housing and mobile home park areas.

The family housing area also includes the San Onofre Marine Corps Exchange complex, an elementary school for grades kindergarten (K) through 8, a child care facility and a community center. This school is an estimated 1.5 km (0.9 mi) from the centerline of the FEC-W, FEC-M and A7C-FEC-M Alternatives.

4.21.2.3 Methodology Related To Military Impacts

The military impacts analysis focuses on an area of Camp Pendleton that extends three km (1.9 mi) from the centerline of the alignments of the SOCTIIP build Alternatives on and in the immediate vicinity of the Camp Pendleton. This study area specifically encompasses:

- Developed military training camp areas referred to as cantonment areas.
- Land and airspace areas dedicated to Marine Corps combat readiness training referred to as training areas, ranges, SUA and aviation training support facilities.
- Outleased areas including the agricultural leases and the California State Department of Parks and Recreation lease for San Onofre State Beach.

Each existing land use is described, inventoried and, where appropriate, quantified. The primary basis for evaluation of impacts to Camp Pendleton is the degree to which the proposed SOCTIIP Alternatives would interfere with or jeopardize the stated Military Mission of Camp Pendleton. The Marine Corps is the primary agency in the position to evaluate the degree to which the SOCTIIP Alternatives would affect its stated Mission. Therefore, this criterion was developed in conjunction with the Marine Corps' evaluation of the Alternatives that involve Camp Pendleton property.

Any Alternative which encroaches into the Base would segment/isolate Base property which the Marine Corps indicated subsequent to TCA Environmental Impact Report (EIR) No. 3 would be a significant adverse impact to the Military Mission of Camp Pendleton (Larry Rannals, 2002). This is documented in TCA EIR No. 3 and in continuing correspondence from the Marine Corps. Therefore, the impact evaluation criteria for potential military impacts under both NEPA and CEQA are rooted in this basic assumption. As a result, the SOCTIIP Alternatives which require the acquisition of property from Camp Pendleton would, by definition, have adverse impacts on the Base's Mission under NEPA and significant adverse impacts on the Base's Mission under the California Environmental Quality (CEQA). The more Base land that is segmented or isolated by a SOCTIIP Alternative, the greater the adverse impact of that Alternative on the Base mission.

Since the certification of TCA EIR No. 3, the Marine Corps has been on record as stating that the only proposed SOCTIIP Alternative that involves Camp Pendleton land that would not substantially interfere with or jeopardize the Marine Corps' Mission is the original alignment identified on the Base (previously the C and CP alignments, now the alignment of the FEC-M, FEC-W and A7C-FEC-M Alternatives)(Larry Rannals, 2002). This is assumed to include the Initial and Ultimate configurations of the FEC-W, FEC-M, and A7C-FEC-M Alternatives, which are all roughly on the same alignment as the original C alignment (on the Base) which was evaluated in TCA EIR No. 3.

4.21.2.4 Impacts Related To Military Uses

The key areas of concern on Camp Pendleton are SOCTIIP impacts that would inhibit, compromise or preclude the ability of Camp Pendleton to perform its primary Military Mission, the training of Marines or any other impacts that may affect planned or existing training activities. Flexibility and preservation of the training capabilities and capacities of Camp Pendleton are vital for the Marine Corps to meet its Military Mission. Because the training resources at Camp Pendleton are continuously changing to accommodate emerging changes in the national defense mission and military structure, key concerns of the Marine Corps were identified to assist in assessing impacts. The potential impacts of the SOCTIIP Alternatives as they relate to military training activities are described in this subsection.

Construction Impacts Related to Military Uses

Short term impacts are considered temporary and would occur during construction. Due to the magnitude of the project, construction activities are anticipated to occur over a period of months within and near the limits of the Base.

Short Term Impacts Related to Special Use Airspace

Short Term Impacts of the Build Alternatives Related to Special Use Airspace. Typical construction activities include clearing and grubbing, earthmoving (rough, final and remedial grading) installation of drainage facilities and pavement, bridge construction, cranes, pile driving, equipment, drillings, utility and light installation and landscaping. SUA in the SOCTIIP study area for the Base occurs from the ground surface to as high as 2,438.4 m (8,000 ft) above MSL in R-2503A and the San Onofre High and Low MOAs. Short term impacts that must be considered for airspace include visibility. Other than short term, localized fugitive dust and remote risks associated with wildfire hazards during construction, there are no impacts on the Base SUA anticipated during construction of the corridor and I-5 Alternatives. Because SUA is generally associated with airspace and is not as sensitive to ground disturbance activities, these SOCTIIP build Alternatives will not impact the Base SUA because no impacts are expected to occur in the airside environment.

The exception is related to the use of cranes which may remain extended to a height of 12.2 m (40 ft) or more during nighttime hours. The majority of construction equipment will be less than 5.2 m (17 ft) in height. The exception is cranes which could exceed 12.2 m (40 ft) in height

when they are extended and in use. Cranes left in the extended position, at these heights, could pose a risk to low flying aircraft. This is a potential adverse impact during the construction of the corridor and I-5 Alternatives on and in the vicinity of Camp Pendleton.

Short Term Impacts of the No Action Alternatives Related to SUA. The No Action Alternatives would not result in construction of transportation improvements on or immediately adjacent to Camp Pendleton. Therefore, the No Action Alternatives would have no effect on rules for the SUA overlying Camp Pendleton or on the use of that airspace.

Short Term Impacts of the Build Alternatives Related to Aviation Training Activities

Short Term Impacts of the FEC-W, FEC-M and A7C-FEC Alternatives Related to Aviation Training Activities. For aviation training activities, the FEC-W, FEC-M and A7C-FEC-M Alternatives will result in an adverse, short term impact associated with military aircraft and helicopters that engage in various training operations. The increased vehicle and construction activities on the Base, within the construction limits for these Alternatives, could result in a restriction of external load operations, including SPIE rigging, for the period of construction. In addition, there is a potential adverse impact associated with the use of cranes which may remain extended to a height of 12.2 m (40 feet) or more during nighttime hours. Cranes left in the extended position, at these heights, could pose a risk to low flying aircraft. This is a potentially adverse impact during the construction of these Alternatives.

Short Term Impacts of the CC Alternative Related to Aviation Training Activities. For aviation training activities, this Alternative is not expected to result in any adverse, short term impact associated with military aircraft and helicopters that engage in various training operations. Construction of this Alternative will occur just outside the northwestern most part of the Base, within the existing I-5 right-of-way, adjacent to the State Beach, from the County boundary to the Cristianitos Road interchange. No military aircraft or helicopter training is anticipated in this area. Therefore, construction of the CC Alternative will not result in short term impacts related to aviation training activities at Camp Pendleton.

However, as discussed earlier, there is a potential adverse impact associated with the use of cranes which may remain extended to a height of 12.2 m (40 ft) or more during nighttime hours. Cranes left in the extended position, at these heights, could pose a risk to low flying aircraft. This is a potential adverse impact during the construction of this Alternative.

Short Term Impacts of the I-5 Alternative Related to Aviation Training Activities. For aviation training activities, this Alternative is not expected to result in any adverse, short term impact associated with military aircraft and helicopters that engage in various training operations. The I-5 Alternative construction will occur in the northwestern most part of the Base, within the existing I-5 right of way, at the Cristianitos Road interchange. No military aircraft or helicopter training is anticipated in this area. Therefore, construction of this Alternative will not result in short term impacts related to aviation training activities at Camp Pendleton.

However, as discussed earlier, there is a potential adverse impact associated with the use of cranes which may remain extended to a height of 12.2 m (40 ft) or more during nighttime hours. Cranes

left in the extended position, at these heights, could pose a risk to low flying aircraft. This is a potential adverse impact during the construction of the I-5 Alternative.

Short Term Impacts of the No Action Alternatives Related to Aviation Training Activities. The No Action Alternatives would not result in construction transportation improvements on or immediately adjacent to Camp Pendleton. Therefore, the No Action Alternatives would not change or adversely affect aviation training assets and opportunities at Camp Pendleton.

Short Term Impacts Related to Ground and Amphibious Training

Short Term Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives Related to Ground and Amphibious Training. The construction of the FEC-W, FEC-M and A7C-FEC-M Alternatives would result in an adverse impact related to ground training activities for the entire construction period and through operations. During construction and operations, these Alternatives would create a linear barrier between the northernmost part of the Base adjacent to the City of San Clemente and the remainder of the Base. Troop movement in this area would be impeded. The amount of land that would be segmented from the rest of the Base varies depending on the Alternative as summarized in Table 4.21-1. Table 4.21-1 lists the Alternatives on and near the Base and the estimated impacts of the Alternatives on the Base, related to the acquisition of temporary and permanent easements and fragmentation of property as follows:

- The first column (Construction Area for Alternative) lists the hectares (acres) on the Base that would be disturbed during the construction of each Alternative.
- The second column (Area for the Alternative) lists the hectares (acres) on the Base that would be occupied by the Alternative once the Alternative is built (permanent right-of-way).
- The third column (Area Segmented from Base) lists the hectares (acres) on the Base that would be permanently segmented from the rest of the Base by the Alternative.
- The fourth column (Total Area Affected) lists the total hectares (acres) permanently affected by the Alternative. This column is a total of the hectares (acres) in the second and third columns.

Figure 4.21-9 shows the areas on the Base affected under these Alternatives. Therefore, because construction for these Alternatives would result in the removal of property from future Base use as shown in Table 4.21-1, and would impede or affect training movements, they will result in an adverse impact on the Military Mission of Camp Pendleton related to ground and amphibious training.

However, because military training has historically been relatively minimal within this area of the Base, the Marine Corps has consistently indicated that the encroachment impact created under these Alternatives and the resulting segmentation of less than 203 ha (500 ac) of Base property would be consistent with conditions previously agreed to by the Marine Corps and the TCA in 1992 regarding any potential implementation of this project on the Base (i.e., only one alignment to be studied on the Base, that one alignment must be as close to the northern Base boundary as possible and the alignment must not interfere with the Mission or operational flexibility of Camp Pendleton). These

Alternatives are also consistent with the National Defense Authorization Act for Fiscal Year 1999, which specifically states that an easement for this project would be granted based on a survey found satisfactory to the Secretary of the Navy, and on the Secretary's consideration of the protection of the interests of the United States (Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, Conference Report to Accompany H.R. 3616, September 23, 1998).

Short Term Impacts of the CC Alternative Related to Ground and Amphibious Training. Construction of the CC Alternative would not result in any temporary alterations to existing Camp Pendleton access across/under I-5 and would not create any new temporary barriers to access across/under I-5 or elsewhere on the Base. Therefore, the CC Alternative would not result in adverse impacts related to ground and amphibious training on Camp Pendleton.

Short Term Impacts of the I-5 Alternative Related to Ground and Amphibious Training Activities. Construction of the I-5 Alternative would not result in any temporary alterations to existing Camp Pendleton access across/under I-5 and would not create any new temporary barriers to access across/under I-5 or elsewhere on the Base. The construction of this Alternative would require acquisition of an easement for a small area (approximately 2.4 ha (5.9 ac)) on the Base as shown on Figures 4.21-10 and 4.21-11, but would not impede troop movement or other training activities on this part of the Base. Although this Alternative would encroach onto the Base which is an adverse impact, it would not result in an adverse impact related to the Military Mission at Camp Pendleton because of their location immediately adjacent to the I-5/Cristianitos Road interchange; it would not fragment land on the Base and requires only a very small easement area on the Base.

Impacts of the No Action Alternatives Related to Ground and Amphibious Training Activities. The No Action Alternatives would not result in construction of transportation improvements on or in the immediate vicinity of Camp Pendleton. The Marine Corps currently uses I-5 for movement of vehicles and equipment, but I-5 is not part of formal ground training activities at Camp Pendleton. Therefore, although future equipment and vehicle movement on I-5 may be affected by continued and worsening congestion on I-5, the No Action Alternatives will not result in adverse impacts on a ground and amphibious training activities at Camp Pendleton.

Short Term Impacts Related to Base Security

Short Term Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives Related to Base Security. The construction areas for the FEC-W, FEC-M and A7C-FEC-M Alternatives cross Base property and, therefore, would potentially provide an opportunity for unauthorized access to the Base from the construction areas. Maintaining the integrity of the existing security at Camp Pendleton is necessary to protect the training missions and assets on the Base. Because of the creation of the opportunity for unauthorized access to the Base, the construction of the FEC-W, FEC-M and A7C-FEC-M Alternatives will result in the potential for adverse impacts on Base security.

Short Term Impacts of the CC Alternative Related to Base Security. The construction area for this Alternative is immediately adjacent to the north part of the Base property, within the existing I-5 right of way. Although this Alternative will not require any construction on Base property, it is possible that existing Base security fencing could be modified during construction (in consultation

with the Marine Corps). In addition, the construction areas will potentially provide an opportunity for unauthorized access to the Base from the construction areas. Maintaining the integrity of the existing security at Camp Pendleton is necessary to protect the training missions and assets on the Base. Because of the creation of the opportunity for unauthorized access to the Base, the construction of the CC Alternative will result in the potential for adverse impacts on Base security.

Short Term Impacts of the I-5 Alternative Related to Base Security. The construction area for this Alternative is within the northernmost part of the Base and immediately adjacent to the north part of the Base property, on both sides of I-5. This Alternative will require construction on and immediately adjacent to the Base. The construction area will potentially provide an opportunity for unauthorized access to the Base from the construction area. Maintaining the integrity of the existing security at Camp Pendleton is necessary to protect the training missions and assets on the Base. Because of the creation of the opportunity for unauthorized access to the Base, the construction of the I-5 Alternative will result in the potential for adverse impacts on Base security.

Impacts of the No Action Alternatives Related to Base Security. The No Action Alternatives would not result in construction of any transportation improvements on or in the immediate vicinity of Camp Pendleton. Therefore, the No Action Alternatives will not result in adverse impacts on Base security.

Long Term Impacts Related to Military Uses

Long term impacts would be those that would occur during operation of the build Alternatives.

Long Term Impacts Related to Special Use Airspace

Long Term Impacts of the Build Alternatives Related to Special Use Airspace. The operation of the FEC-W, FEC-M, A7C-FEC-M and CC Alternatives and the I-5 Alternative in that part of the Base where the SUA overlies Camp Pendleton would have no impact on either the configuration or use of SUA because no changes to the rules governing use of the airspace would be needed during operation of the corridor. Military fixed-wing aircraft and helicopters would continue to be able to use R-2503A and R-2503B as egress/ingress routes to aviation and ground training facilities at the Base. Restricted airspace R-2503A would remain designated from the ground surface to 609.6 m (2,000 ft) above MSL and the San Onofre Low MOA and High MOA would remain at 609.6 m (2,000 ft) to 1,219.2 m (4,000 ft), and 1,219.2 m (4,000 ft) to 2,438.4 m (8,000 ft), respectively. With the exception of some Marine Corps concern about effects on night vision goggle training operations along the northern perimeter of the Base, described in the following Section, these build Alternatives will not adversely impact SUA above the ground surface on the Base.

Long Term Impacts of the No Action Alternatives Related to SUA. The No Action Alternatives would not result in the operation of any SOCTIIP transportation improvements on or immediately adjacent to Camp Pendleton. Therefore, the No Action Alternatives would have no effect on rules for the SUA overlying Camp Pendleton or on the use of that airspace.

Long Term Impacts Related to Aviation Training Activities

Long Term Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives Related to Aviation Training Activities. Helicopters typically fly at altitudes below 61 m (200 ft) above ground level (AGL) throughout the San Mateo Valley. Operation of the FEC-W, FEC-M and A7C-FEC-M Alternatives would increase vehicular traffic in an area that is currently relatively undeveloped. This increase in traffic could result in a restriction of external load operations, including SPIE rigging, on this part of the Base. This increase in traffic and associated lights and motion would impact the effectiveness of night vision goggle training in the area, and could potentially become a hazard to low flying helicopters in the immediate area. There are existing lighting distractions in the SOCTIIP study area, namely, the cantonment areas (Talega, Cristianitos, San Mateo, San Onofre) and vehicular traffic on existing on-Base roads and on I-5. The additional night lighting associated with vehicles on the corridor and facility lights under the FEC-W, FEC-M and A7C-FEC-M Alternatives would contribute to cumulative adverse light impacts in this part of the Base. This additional cumulative lighting added by operations under these Alternatives on Camp Pendleton could adversely affect future night vision goggle training operations along the northern perimeter of the Base.

The FEC-W, FEC-M and A7C-FEC-M Alternatives will have an adverse impact on aviation training, specifically external load operations, on this part of the Base. A similar situation currently exists within the boundaries of Camp Pendleton and under Restricted Airspace R-2503A. Military aircraft, including helicopters, engage in various air operations over and adjacent to existing I-5. Restrictions prohibiting external load operations, including SPIE rigging over I-5 within R-2503A, are attributed to concern for the safety of vehicular traffic on I-5. A similar aviation safety precaution must also be exercised with respect to any planned helicopter external load operations occurring above proposed on-Base SOCTIIP routes. Therefore, the FEC-W, FEC-M and A7C-FEC-M Alternatives may result in an adverse impact on future external load operations along the northern perimeter of the Base.

The RCUZ Program (1993) classifies recurring areas of aviation overflight on Camp Pendleton as RSZ E. RSZ E areas represent areas of the Base having frequent aviation overflight and include those areas most frequently used by aircraft entering or departing the ranges or operating on low altitude navigation training routes. Public rights-of-way are considered to be conditionally compatible with aviation overflight. These Alternatives would lie directly beneath a designated aviation overflight area (RSZ E) on the Base. As a public right-of-way, the corridors under these Alternatives would be conditionally compatible with aviation overflights.

Aircraft arrival and departure patterns in and out of the HOLF may result in low altitude overflight of the FEC-W, FEC-M and A7C-FEC-M Alternatives. One function of the HOLF is to support low-ambient-light night vision goggle training for helicopter aircrews. For safety and effectiveness, night vision goggle training must be conducted in darkened, uninhabited areas that offer few lighted distractions. The presence of the corridor under these Alternatives, with moving lighted vehicles in proximity to the HOLF, would conflict with the objectives of night vision goggle training. In addition, the interchanges at Cristianitos Road and Avenida Pico would be illuminated by pole lights in accordance with Caltrans standards. Therefore, the impacts of these Alternatives on operations associated with the HOLF on this part of the Base would be adverse.

Long Term Impacts of the CC and I-5 Alternatives Related to Aviation Training Activities. The CC Alternative and the I-5 Alternative would result in widening of the existing freeway and improvements to the existing Cristianitos Road interchange adjacent to the northwestern most part of the Base. This part of the Base, while not extensively used for aviation training activities, does serve as a designated Base entry point for transit military helicopters. The improvements to I-5 immediately adjacent to the Base under these Alternatives would not substantially change night lighting conditions compared to existing night lighting in this area. Therefore, these SOCTIIP Build Alternatives will not result in adverse impacts related to aviation training activities.

Impacts of the No Action Alternatives Related to Aviation Training Activities. The No Action Alternatives would not result in operation of any SOCTIIP transportation improvements on or immediately adjacent to Camp Pendleton. Therefore, the No Action Alternatives would not change or adversely affect aviation training assets and opportunities at Camp Pendleton.

Long Term Impacts Related to Ground and Amphibious Training

Long Term Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives Related to Ground and Amphibious Training. The long term impact of the FEC-W, FEC-M and A7C-FEC-M Alternatives on ground training activities would be adverse. The operation of these Alternatives would result in a linear barricade between the northernmost part of the Base adjacent to the City of San Clemente and the remainder of the Base. Troop movement and training activities in this area would be permanently impeded by the presence of the corridor. Although these Alternatives would traverse property currently leased to the State of California Department of Parks and Recreation and areas not historically or recently used for military training activities, the Marine Corps would forfeit any future opportunity to maneuver troops in the area occupied by these Alternatives and in the land area between the alignment of these Alternatives and the boundary of the City of San Clemente. Under the lease agreement with the Department of Parks and Recreation, Camp Pendleton is allowed to use San Onofre State Beach for training with 48 hours prior notice. This area has some availability as an active training area. Therefore, this area does have some available training utility in its present, non-fragmented state. As shown in Table 4.21-1, the area that would be segmented from the Base by these Alternatives ranges from approximately 189 ha (468 ac) for the Initial to approximately 164 ha (405 ac) for the Ultimate. However, this segmented area of the Base would not prove suitable for future military training purposes once it is severed from other training areas with implementation of these Alternatives. This segmented area would not provide a useful sized area or a realistic training scenario from which to conduct military training activities. While this segmented area might potentially be used for other functions such as resources protection/management or recreation activities, it would not be suitable for use as a military training area. Therefore, the permanent acquisition of an easement for implementation of these Alternatives and the resulting segmentation of this area of potential training land on the Base would result in an adverse impact on the Military Mission of Camp Pendleton.

However, as noted earlier, these Alternatives are consistent with the 1988 Commandant Letter and the 1992 Statement of Intent for constructing a corridor project on Camp Pendleton.

Operation of the FEC-W, FEC-M and A7C-FEC-M Alternatives would increase vehicular traffic in an area that is relatively undeveloped. This increase in traffic and its noise, lights and motion would impact the effectiveness of night training operations in the area. There are existing lighting distractions in the SOCTIIP study area in each of the cantonment areas and associated with vehicular traffic along existing on-Base roads and I-5. As a result, as described earlier, the FEC-W, FEC-M, and A7C-FEC-M Alternatives would contribute to continued adverse light impacts in this part of the Base.

Green Beach, in the vicinity of the FEC-W, FEC-M, and A7C-FEC-M Alternatives at the I-5 interchange, is an access/egress point for amphibious training activities. Access for the planned LCAC craft training activities at Green Beach would be accommodated under the FEC-W, FEC-M, and A7C-FEC-M Alternatives. Therefore, the operation of these Alternatives would not result in adverse impacts related to the planned future LCAC training activities.

From a land use compatibility and safety perspective, training areas are of moderate safety concern. As discussed earlier under Aviation Activities, the RCUZ Program classifies primary aviation overflight corridors as RSZ E. These Alternatives would lie directly beneath a designated aviation overflight area (RSZ E) on the Base. As a public right-of-way, the corridors under these Alternatives would be conditionally compatible with aviation overflights.

Long Term Impacts of the CC Alternative Related to Ground and Amphibious Training. The operation of the I-5 and improved Cristianitos Road interchange with I-5 under the CC Alternative would not result in the creation of permanent alterations to existing Camp Pendleton access across/under I-5 and would not create any new permanent barriers to access across/under I-5 or elsewhere on the Base. Access for the proposed LCAC crossing would be accommodated by the CC Alternative. Therefore, this Alternative would not result in adverse impacts related to ground and amphibious training on Camp Pendleton.

Long Term Impacts of the I-5 Alternative Related to Ground and Amphibious Training. The operation of the I-5 and improved Cristianitos Road interchange with I-5 under the I-5 Widening Alternative would not result in the creation of permanent alterations to existing Camp Pendleton access across/under I-5 and would not create any new permanent barriers to access across/under I-5 or elsewhere on the Base. Access for the proposed LCAC crossing would be accommodated by the I-5 Alternative. This Alternative would require the acquisition of property from the Base, but would not impede troop movement or other training activities on this part of the Base. However, because this Alternative would encroach onto the Base, it would result in an adverse impact related to the Military Mission at Camp Pendleton.

Long Term Impacts of the No Action Alternatives Related to Ground and Amphibious Training Activities. The No Action Alternatives would not result in the operation of any SOCTIIP transportation improvements on or in the immediate vicinity of Camp Pendleton. The Marine Corps currently uses I-5 for movement of vehicles and equipment, but I-5 is not part of formal ground training activities at Camp Pendleton. Therefore, although future equipment and vehicle movement on I-5 may be affected by continued and worsening congestion on I-5, the No Action Alternatives will not result in adverse impacts on a ground and amphibious training activities.

Long Term Impacts Related to Base Security

Long Term Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives Related to Base Security. Because the FEC-W, FEC-M and A7C-FEC-M Alternatives cross Base property, the operation of these corridors would potentially provide an opportunity for unauthorized access to the Base from the corridor right-of-way. Maintaining the integrity of the existing security at Camp Pendleton is necessary to protect the training missions and assets on the Base. Because of the creation of the opportunity for unauthorized access to the Base, the operation of the FEC-W, FEC-M and A7C-FEC-M Alternatives will result in the potential for adverse impacts on Base security.

Long Term Impacts of the CC Alternative and the I-5 Alternative Related to Base Security. Because these Alternatives are immediately adjacent to I-5, the operation of these corridors would potentially provide an opportunity for unauthorized access to the Base from the I-5 right-of-way. However, this opportunity would not be different than the existing opportunities for unauthorized access from the existing I-5 right-of-way adjacent to this part of the Base. Therefore, the operation of the CC Alternative and I-5 Alternative will not result in the potential for adverse impacts on Base security.

Long Term Impacts of the No Action Alternatives Related to Base Security. The No Action Alternatives would not result in the operation of any SOCTIIP transportation improvements on or in the immediate vicinity of Camp Pendleton. Therefore, the No Action Alternatives will not result in adverse impacts on Base security.

Summary of Impacts Related to Military Uses

Table 4.21-2 provides a summary and comparison of the impacts of the SOCTIIP build Alternatives related to military training and operations. Some of the Alternatives on and in the vicinity of Camp Pendleton share similar alignments and, therefore, will result in the same or very similar impacts on the Base. These Alternatives are grouped together by column in Table 4.21-2, so that Alternatives with similar alignments and impacts are shown together.

Figure 4.21-9 shows the areas on the Base that will be affected by the FEC-W, FEC-M and A7C-FEC-M Alternatives. These includes the areas disturbed during construction, the right-of-way limits, and the areas fragmented from the rest of the Base when the build Alternatives are operational, as summarized in Tables 4.21-1 and 4.21-2.

The CC Alternative will not require the acquisition of any easements on the Base and will not fragment any land on the Base. The I-5 Alternative will not require the acquisition of any land from Camp Pendleton, at the northern part of the Base adjacent to I-5 (in the State Beach lease) and would not fragment any land from the Base. Therefore, no figures are provided for these Alternatives.

As shown in Table 4.21-2, during construction, all the build Alternatives will result in the same potential short term adverse impact on SUA related to the use of cranes extended to a height of 12.2 m (40 ft) or more during nighttime hours. During operations, the build Alternatives will result in either no impact or no adverse impact related to SUA.

Because all the build Alternatives will introduce new lighting sources on and immediately adjacent to the Base during construction, they will result in adverse impacts related to low level night flight and night vision goggle training. However, only the FEC-W, FEC-M and A7C-FEC-M Alternatives will result in the introduction of permanent new sources of lighting, which will result in a long term impact related to low level night flight and night vision goggle training.

As shown in Tables 4.21-1 and 4.21-2, the FEC-W, FEC-M and A7C-FEC-M Alternatives, and I-5 Alternative will all require the temporary and permanent acquisition of easements on Camp Pendleton and will result in short and long term impacts related to the loss of that land, and land fragmented from the rest of the Base (except for the I-5 Alternative), for military training which is an adverse impact related to ground and amphibious training and land use. The CC Alternative will not require the permanent or temporary acquisition of any easements from Camp Pendleton and, therefore, will not result in adverse impacts related to ground and amphibious training and land use.

As shown in Table 4.21-2, during construction, all the build Alternatives will result in increased potential for unauthorized access to the Base which is an adverse impact related to Base security. During operations, the FEC-W, FEC-M and A7C-FEC-M Alternatives will result in increased potential for unauthorized access to the Base which is an adverse impact related to Base security. The operation of the remaining build Alternatives will be similar to existing operations on I-5 and, therefore, will not result in adverse impacts related to Base security.

4.21.2.5 Mitigation Measures for Short Term Impacts Related To Military Uses

M-1: Nighttime Lighting and Shielding. During construction of the SOCTIIP build Alternatives on or in the immediate vicinity of Camp Pendleton, to minimize conflicts with night training by Base personnel, the following will be implemented:

- Construction lighting requirements during evening and night activities will be adjusted with proper shielding to focus illumination downwards in designated work areas. To accomplish this, lighting fixtures will be fitted and hooded to minimize the spillage of light in an upward direction and on adjacent properties. Lighting will be designed to use the latest style of lighting (known as "mused lighting") to reduce the impact on night vision goggle training activities.

- Fixed lighting will not exceed the minimum needed to meet Caltrans standards. Lighting will be shrouded to reduce backscatter and vertical light pollution and will be of a type to minimize effects on adaptation to darkness and changes in light levels.

- A design review memoranda will be produced by the Contractor indicating that lighting design and materials used to minimize light and glare during construction are consistent with the requirements of this mitigation measure.

- Cranes which would remain extended to a height of 12.2 meters (40 feet) above ground level (AGL) or higher during night-time hours must include the use of a Federal Aviation

Administration (FAA) approved aircraft obstruction light mounted at the highest point of the equipment's extension AGL. The aircraft obstruction light must be operational from 30 minutes before sunset until 30 minutes after sunrise each day the equipment is in place and extended above 12.2 meters (40 feet) AGL overnight.

Mitigation measure M-1 applies to the CC, I-5, FEC-W, FEC-M and A7C-FEC-M Alternatives.

M-2: Access and Coordination. Construction activities and equipment movement could adversely impact the movement of troops and use of ranges during construction. These impacts will be mitigated by coordination among the TCA, the Contractor and Camp Pendleton personnel. Specifically, the Contractor will identify access routes, staging areas and all expected movement corridors during construction and will produce a design review memoranda/exhibit. These will be reviewed with the TCA and Camp Pendleton personnel to ensure construction activity impacts on Base training are minimized.

Measure M-2 applies to the FEC-W, FEC-M and A7C-FEC-M Alternatives.

M-3: Base Security During Construction. For any corridor alignment which traverses or is in the immediate vicinity of Camp Pendleton, prior to final design, security measures shall be incorporated into the project construction specifications to ensure that construction workers and others cannot access the Base from the construction areas. These security measures shall be designed in consultation with Camp Pendleton and shall be in the form of physical barriers including but not limited to walls and fencing. These security measures shall be implemented prior to any project related construction and shall be adequately maintained throughout the construction period.

Measure M-2 applies to the FEC-W, FEC-M, A7C-FEC-M and I-5 Alternatives.

4.21.2.6 Mitigation Measures for Long Term Impacts Related To Military Uses

M-4: Nighttime Lighting and Shielding. During operation of a SOCTIIP build Alternative on or immediately adjacent to Camp Pendleton, to minimize conflicts with night training by Base personnel, permanent night lighting will be adjusted with proper shielding to focus illumination downwards. Lighting fixtures will be fitted and hooded to minimize the spillage of light in an upward direction and on adjacent properties including the Base. Lighting will be designed to use the latest style of lighting (known as "mused lighting") to further minimize potential glare effects on the Base. This design will be implemented at all places on and adjacent to the Base requiring lighting along the road including interchanges and the mainline. To reduce the impact on night vision goggle training activities, fixed lighting on and immediately adjacent to the Base will not exceed the minimum needed to meet Caltrans standards. Lighting on and immediately adjacent to the Base will be shrouded to reduce backscatter and vertical light pollution and should be of a type to minimize effects on adaptation to darkness and changes in light levels.

A design review memoranda will be produced by the Contractor indicating that lighting design and materials used to minimize light and glare during operation on and immediately adjacent to the Base are consistent with the requirements of this mitigation measure.

Measure M-4 applies to the FEC-W, FEC-M and A7C-FEC-M Alternatives.

M-5: Land Use Fragmentation/Ground Training. To reduce impacts associated with the fragmentation of land available on Camp Pendleton and to avoid creating a parcel on the Base fully fragmented and inaccessible from the rest of the Base, two underpasses will be constructed to provide clearance for military personnel and equipment movement. The underpasses will be sized and designed to accommodate the equipment and personnel needs as may be defined by the Marine Corps and the DON.

Measure M-5 applies to the FEC-W, FEC-M and A7C-FEC-M Alternatives.

M-6: Base Security. For any corridor alignment which traverses or is immediately adjacent to Camp Pendleton, prior to final design, security measures shall be incorporated into the project design to ensure that users of the corridor cannot access the Base. These measures shall be designed in consultation with Camp Pendleton and shall be in the form of physical barriers including but not limited to walls and fencing. These security measures shall be implemented and fully operable prior to public access to the corridor.

Measure M-6 applies to the FEC-W, FEC-M, A7C-FEC-M and I-5 Alternatives.

4.21.3 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR LAND USE AND PLANNING RELATED TO CAMP PENDLETON

The following subsections of Section 4.21 discuss potential impacts on Camp Pendleton for environmental parameters other than Military Mission. The methodologies for these analyses were provided elsewhere in Section 4.0. Cross references to those Sections are provided in these discussions.

4.21.3.1 Affected Environment for Land Use and Planning Related to Camp Pendleton

MCB Camp Pendleton is the Marine Corps' only amphibious (land and water) training center on the west coast of the United States, with over 50,586 ha (125,000 ac) of land, 29 km (18 mi) of coastline, training areas, ranges and Special Use Airspace as depicted on Figure 4.21-1. The southeast portion of the SOCTIIP study area within the Camp Pendleton boundary includes land uses associated with six heavily used training areas, five artillery firing areas, one aviation drop zone, one helicopter heavy lift pad, numerous live-fire ranges, Green Beach (a beach used to support amphibious landing exercises) and the northwestern most maneuver corridor which supports battalion-sized training exercises. This area also underlies one of MCB Camp Pendleton's most vital assets, its restricted airspace-specifically designated as Restricted Area R-2503A and the San Onofre Low and High MOAs. These specific uses on the northern part of the Base are discussed in detail Section 4.21.2.2 (Affected Environment Related to Military Uses).

SOCTIIP Alternatives that encroach on active areas of the Base have implications related to the following land use and management plans for MCB Camp Pendleton:

- Camp Pendleton Master Plan.
- Strategic Plan.
- Integrated Natural Resources Management Plan (INRMP).
- P-2020 Plan.

Two existing leases on Camp Pendleton in the SOCTIIP study area are San Onofre State Beach (SOSB) and the agricultural lease area. SOSB is discussed as a lease area on the Base only in this Section. For discussion of potential impacts related to land use and planning at SOSB, refer to Sections 4.2 (Affected Environment, Impacts and Mitigation Measures Related to Land Use) and 4.24 (Affected Environment, Impacts and Mitigation Measures Related to Recreation Resources). There is also an easement to the State, for I-5.

The INRMP has five Programmatic Ecosystem Management Plans:

- Riparian and Estuarine/Beach Habitats Program
- Santa Margarita River Watershed Management Program
- Team Arundo-Watershed Exotics Control
- Santa Margarita and the San Luis Rey Weed Management Area Program
- Santa Margarita Ecological Reserve

The project will have a potential to impact approximately 10 acres of wetland communities, predominately associated with shading. The SOCTIIP also has the potential to impact one Least Bell's Vireo site. The Riparian and Estuarine/Beach Habitats Program provides both Camp Pendleton and the USFWS with parameters for minimizing impacts associated with ongoing military operations on base. None of the direct or indirect impacts associated with the SOCTIIP project would jeopardize the ongoing or future implementation of this program. The Team Arundo-Watershed Exotics Control Program has implemented exotic control over areas along Cristianitos Creek and San Mateo Creek. Implementation of the SOCTIIP will not affect any of activities associated with the Team Arundo-Watershed Exotics Control Program. The SOCTIIP will not traverse any territory under the control of the Santa Margarita River Watershed Management Program, Santa Margarita and the San Luis Rey Weed Management Area Program, or the Santa Margarita Ecological Reserve.

4.21.3.2 Methodology for Land Use and Planning Related to Camp Pendleton

The methodology for assessment of land use impacts is described in detail in Section 4.2.2 (Methodology Related to Land Use).

4.21.3.3 Impacts for Land Use and Planning Related to Camp Pendleton

As discussed in Section 4.21.1, the military training mission is dependent on existing land uses on the Base. All the SOCTIIP build Alternatives that directly affect the Base affect the SOSB outlease and/or the I-5 easement. The detailed discussion regarding land use impacts to the Base is provided in Section 4.21.2.4 (Impacts to Military Uses).

Construction Impacts for Land Use and Planning Related to Camp Pendleton

The potential construction impacts of the SOCTIIP Alternatives related to land use are the same as described in Section 4.21.2.4.

Long Term Impacts for Land Use and Planning Related to Camp Pendleton

The potential long term impacts of the SOCTIIP Alternatives related to land use are the same as described in Section 4.21.2.4.

4.21.3.4 Mitigation for Land Use and Planning Related to Camp Pendleton

All temporary use and permanent acquisition of right-of-way for the build Alternatives will be conducted consistent with the requirements of the Uniform Relocation and Assistance Real Property Acquisition Polices Act of 1970, as amended, and California Government Code, Chapter 16, Section 7260, et. seq. A mitigation measure regarding compliance with these Acts for all temporary use and permanent acquisition of property for the build Alternatives is included later in Section 4.21.5 (Affected Environment, Impacts and Mitigation for Socioeconomics and Environmental Justice Related to Camp Pendleton). That measure, as referenced in this Section, would also apply to some of the land use and agricultural resources impacts of the SOCTIIP build Alternatives. The following mitigation measure applies to the design to minimize impacts to existing land uses. It applies to all areas where land use impacts could occur including the Base.

Measure LU-1: Impacts on Existing Land Uses. If a SOCTIIP build Alternative is selected, design refinements to avoid or minimize impacts to existing land uses, related to the temporary use and/or permanent acquisition of property, will be incorporated in the final design of the selected Alternative, where prudent and feasible.

4.21.4 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR FARMLAND RELATED TO CAMP PENDLETON

4.21.4.1 Affected Environment for Farmland Related to Camp Pendleton

As discussed in Section 4.3 (Affected Environment, Impacts and Mitigation Related to Farmland), there are two major agricultural areas in the SOCTIIP study area. One is on RMV and the other is on MCB Camp Pendleton.

MCB Camp Pendleton regulates and manages resources on the Base based on the Camp Pendleton Master Plan (1996) and the Final INRMP. The Master Plan is more of a long term planning document which inventories and generally describes existing uses and planned uses for the Base. The INRMP contains detailed accounts of natural resources on the Base and the Base's policies to use and preserve these natural resources.

Rated Farmland

Prime farmland is protected by guidelines and standards described in the Environmental Protection Manual, MCO P11000.8B. The soil types on Base that qualify, as managed by the Environmental Security Department, comprise roughly 5,468 ha (13,500 ac) of the Base, of which approximately 486 ha (1,200 ac) are now being farmed. Of those, the approximately 243 ha (600 ac) shown on Figure 4.3-5 are the agricultural uses on the Base in the SOCTIIP study area.

Agricultural Outleases

The Base leases approximately 9,712 ha (24,000 ac) for intermittent livestock grazing and 486 ha (1,200 ac) for row crop production. General oversight of MCB Camp Pendleton's agricultural leases and land use management associated with the agricultural lease areas is a function of the Environmental Security Department. San Clemente Farms operates a 240 ha (592 acre) agricultural area adjacent to SOSB, which is leased by the DON to the Deardorff-Jackson Company, and which produces field or truck crops (potatoes, tomatoes and cucumbers). This lease expires in December 2003. There is no indication from MCB Camp Pendleton that agricultural uses in this area will cease although the lessee could change. Approximately 220 ha (546 ac) of this area is used for farming activities with the remainder used for administrative or operational uses. The outleased area is shown on Figure 4.3-5. It is the only area in San Diego County in the SOCTIIP study area identified as Prime Farmland and Farmland of Statewide Importance on the State's map.

Existing Agricultural Preserves (Williamson Act Preserves)

Land on MCB Camp Pendleton is not subject to agricultural preserves under the Williamson Act because this property is federally owned.

4.21.4.2 Methodology for Farmland Related to Camp Pendleton

The methodlogy for assessing impacts related to agricultural resources is described in detail in Section 4.3.2 (Methodology Related to Farmland).

4.21.4.3 Impacts for Farmland Related to the Military Mission

Construction Impacts for Farmland Related to Camp Pendleton

Generally it is the permanent loss of the resource that results in an adverse impact to farmland and agricultural resources. Temporary impacts associated with construction such as limiting access or water supply can be addressed through scheduling and coordination with the construction contractor. Therefore, no adverse construction impacts to farmland on Camp Pendleton would occur under any of the SOCTIIP Alternatives.

Long Term Impacts for Farmland Related to Camp Pendleton

As described earlier in Section 4.3, the study area comprises 17,201.209 ha (42,504.955 ac) of which 792.086 ha (1,957.280 ac) are farmland. SOCTIIP build Alternatives aligned on or in the vicinity of the agricultural resources lands on MCB Camp Pendleton are shown on Figure 4.3-7 and are described in the following Sections.

FEC-W, FEC-M and A7C-FEC-M Alternatives

Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives on NRCS Resources on MCB Camp Pendleton

As shown in Table 4.21-3, these Alternatives would result in the loss of 2.9 ha (7.1 ac) of Farmland of Statewide Importance on MCB Pendleton under the Initials and 2.9 ha (7.3 ac) under the Ultimates for the FEC-W, FEC-M and A7C-FEC-M Alternatives. This represents approximately 0.25 and 0.35 percent of farmland in the SOCTIIP study area. Based on the quality of these soil resources as defined by the NRCS, these Alternatives would adversely impact farmlands and would require protection of these farmlands, including the consideration of avoidance alternatives.

Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternative on Williamson Act Agricultural Preserves on Camp Pendleton

There are no Williamson Act agricultural preserves on MCB Camp Pendleton. Therefore, these Alternatives would not result in adverse impacts related to Williamson Act contracts on MCB Camp Pendleton.

Other Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives on Agricultural Resources on MCB Camp Pendleton

These Alternatives would directly impact part of the agricultural operations at San Clemente Ranch in the San Mateo Valley on MCB Camp Pendleton. The largest contiguous row crop lease on the Base covers nearly 246 ha (600 ac) in San Mateo Valley adjacent to SOSB and San Mateo Creek. These Alternatives would remove the east part of the 3.5 ha (8.7 ac) parcel currently bisected by Cristianitos Road. This represents approximately 18.9 percent of the total area being farmed in this area. This part of San Clemente Ranch has been identified as a high yield crop area because it is not typically subject to frost. Removal of this area from production would negatively impact the leaseholder and would be considered adverse. The remaining part of the lease area could continue to be farmed.

The existing access road for this operation immediately north of I-5 could be impacted temporarily during construction of these Alternatives. Because this is one of only two access roads and it is the only all-weather access road for this operation, disruption of this road would be an adverse impact on this operation. These Alternatives would also require modifications to Cristianitos Road which is the route used by trucks to access the packing house at San Clemente Farms. If this route were not available, this would be an adverse impact to these agricultural

operations. However, because Cristianitos Road would remain open during construction of these Alternatives, no adverse impacts related to access along this route would be anticipated under the FEC-W, FEC-M and A7C-FEC-M Alternatives.

4.21.4.4 Other Build Alternatives and the No Action Alternatives

The remaining build Alternatives and the No Action Alternatives will not require any construction or disturbance of agricultural lands or resources on MCB Camp Pendleton. Therefore, these Alternatives will not result in impacts related to agricultural soils, Williamson Act contracts or agricultural operations on MCB Camp Pendleton.

4.21.4.5 Summary of Impacts for Farmland Related to Camp Pendleton

The potential impacts of the SOCTIIP build Alternatives on farmland on MCB Camp Pendleton are the loss of Prime Farmland and Farmland of Statewide Importance. Table 4.21-3 summarizes the amount of impact (based on disturbance limits) on NRCS agricultural resources on MCB Camp Pendleton for those SOCTIIP Alternatives which impact these resources. As shown in Table 4.21-3, the FEC-M, FEC-W and A7C-FECM Alternatives all result in the removal of the same amount of agricultural land on Camp Pendleton. The CC and I-5 Alternatives will not result in the removal of agricultural land on Camp Pendleton.

4.21.4.6 Mitigation for Farmland Related to Camp Pendleton

Measure AG-3: Agricultural Operations on Camp Pendleton (San Clemente Ranch). During final design, the contractor will develop a realigned access road for San Clemente Ranch to ensure all-weather access to the agricultural operations in the leased area on MCB Camp Pendleton. The timing of the construction of this realigned access road will be coordinated with the agricultural operator to ensure that peak operation times are not affected. The realigned road must be completed prior to closure of the existing road.

4.21.5 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE RELATED TO CAMP PENDLETON

4.21.5.1 Affected Environment for Socioeconomics and Environmental Justice Related to Camp Pendleton

The socioeconomic environment on Camp Pendleton is unlike the socioeconomic environment in the rest of the SOCTIIP study area for one primary reason: the typical market factors that affect the spatial distribution of land uses and people by race and income levels do not really play any part in the distribution of them on the Base. Because it is a military installation, the whole Base functions as its own entity with a large majority of its service personnel and employees living on or near the Base. Therefore, the affected environment for both socioeconomic and environmental justice as it relates to Camp Pendleton is not based on existing and projected population, housing and employment; demographic and socioeconomic characteristics for

southern California; or fiscal characteristics, including property valuation and taxable sales, because these parameters do not apply very well to the socioeconomic environment at the Base.

As discussed in Sections 4.21.1 and 4.21.2, the physical environment in the study area on the Base consists primarily of the SOSB lease area and the I-5 easement. Along Cristianitos Road, an agricultural lease is in active production. Military housing, in the San Mateo and San Onofre housing areas, are in the SOCTIIP study area. In addition, Area 51, which includes San Onofre Recreation Beach and community support facilities such as community center, child care, a school, commissary, exchange and a service station, are in the study area.

4.21.5.2 Methodology for Socioeconomics and Environmental Justice Related to Camp Pendleton

The methodology for assessing impacts related to Socioeconomics and Environmental Justice are described in detail in Section 4.4.2 (Methodology Related to Socioeconomics and Environmental Justice).

4.21.5.3 Impacts for Socioeconomics and Environmental Justice Related to Camp Pendleton

Construction Impacts for Socioeconomics and Environmental Justice Related to Camp Pendleton

There are no construction impacts related to socioeconomics and environmental justice related to the Military Mission. Impacts in this category, if any, are long term by nature.

Long Term Impacts for Socioeconomics and Environmental Justice Related to Camp Pendleton

The only direct impacts of the build Alternatives, which are due to the acquisition of property, occur on the SOSB lease area and the I-5 easement. Alternatives that affect these areas are the:

- FEC-W Alternative.
- FEC-M Alternative.
- A7C-FEC-M Alternative.

Alternatives that affect only the I-5 easement on MCB Camp Pendleton are:

- CC Alternative.
- I-5 Alternative

None of the other areas discussed under the Affected Environment on the Base would be directly affected by these Alternatives. The No Action Alternatives have no impact on the Base.

None of the SOCTIIP Alternatives would result in the acquisition of housing on the Base or the displacement of any jobs on the Base. The population on the Base is arranged by other factors than the rest of the SOCTIIP study area. Given the arrangement of the Base, there are no concentrations of low income or minority populations that would be disproportionately and adversely impacted by the SOCTIIP Alternatives including the No Action Alternatives. In

addition, the DOD, as appropriate would be compensated for land acquired for the right-of-way and use of the disturbance area for any of the SOCTIIP build Alternatives, and tenants leasing the land for economic gain, if displaced, would be subject to the provisions of the Uniform Relocation Act. Therefore, no SOCTIIP Alternative, including the No Action Alternatives, would result in adverse socioeconomic or environmental justice impacts on Camp Pendleton.

Summary of Impacts for Socioeconomics and Environmental Justice Related to Camp Pendleton

There would be no adverse socioeconomic or environmental justice impacts on populations at MCB Camp Pendleton.

4.21.5.4 Mitigation for Socioeconomics and Environmental Justice Related to Camp Pendleton

The only part of the following mitigation measure that applies to Camp Pendleton relates to compensation for property acquisition on the Base, since there are no residential or business displacements on the Base.

Measure SE-2: Property Acquisition and Relocation Assistance. Prior to acquisition of right of way, the TCA or other agencies implementing a SOCTIIP Alternative (because the TCA will not be the implementing agency for the non-corridor alternatives) will comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property within the right-of-way necessary for the proposed project. All displaced households and businesses will be contacted to ensure that each eligible displacee receives their full relocation benefits, including advisory assistance, and that all activities will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources will be available to all eligible displaced persons or businesses without discrimination.

4.21.6 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR PEDESTRIAN AND BICYCLE FACILITIES RELATED TO CAMP PENDLETON

4.21.6.1 Affected Environment for Pedestrian and Bicycle Facilities Related to Camp Pendleton

The Camp Pendleton Final INRMP states the following about recreation facilities on the Base:

> "....[M]any recreational activities occur in cantonment areas (e.g., fitness centers, bowling, and cinemas), on roads or trails (jogging, bicycling), or training areas (hunting, camping). Few areas on Base are dedicated solely for recreational purposes. These are the equestrian facilities (stables, rodeo grounds, horse pastures [1,309 and 123 acres]) and the golf course (380 acres). Although primary purpose of Lake O'Neill is as an aquifer recharge, the lake also provides recreational opportunities for fishing, camping, boating, and the like. Even the State Park is not solely devoted to recreational usage as it is also available for training operations with prior coordination." (page 2-29, Final INRMP, October 2001)

Pedestrian and bicycle facilities in the SOCTIIP study area on Camp Pendleton are on SOSB, as discussed later in Section 4.21.25 (Affected Environment, Impacts and Mitigation Measures Related to Recreation Resources). There are pedestrian and bicycle facilities elsewhere on the Base, but not in the SOCTIIP study area.

4.21.6.2 Methodology for Pedestrian and Bicycle Facilities Related to Camp Pendleton

The methodology for assessing impacts related to pedestrian and bicycle facilities are discussed in detail in Section 4.5.2 (Methodology Related to Pedestrian and Bicycle Facilities).

4.21.6.3 Impacts for Pedestrian and Bicycle Facilities Related to Camp Pendleton

Because there are no pedestrian or bicycle facilities identified on Camp Pendleton in the SOCTIIP study area in the Camp Pendleton Master Plan or INRMP, the SOCTIIP Alternatives will not result in adverse constriction or long term impacts on pedestrian and bicycle facilities on Camp Pendleton.

4.21.6.4 Mitigation for Pedestrian and Bicycle Facilities Related to Camp Pendleton

No mitigation is required for impacts to pedestrian and bicycle facilities on Camp Pendleton because none of these facilities are affected by the SOCTIIP build Alternatives which traverse this part of the Base. Potential impacts and mitigation for impacts to trails in the SOSB lease area are discussed in Section 4.21.25.

4.21.7 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR NOISE RELATED TO CAMP PENDLETON

4.21.7.1 Affected Environment for Noise Related to Camp Pendleton

Noise Assessment Metrics

Noise assessment metrics are described in detail in Section 4.6.1.1 (Noise Assessment Metrics).

Noise Criteria

Noise criteria are discussed in detail in Section 4.6.1.2 (Noise Criteria).

Existing Noise Levels in the Study Area on Camp Pendleton

Existing noise levels in areas around the SOCTIIP Alternatives in terms of NEPA criteria are described in this Section. The following Section presents the location and descriptions of the noise sensitive receptors analyzed. The results of noise measurements made at most of these receptors are provided in this Section. Noise measurements were not made at all receptors. Along I-5 and Antonio Parkway, the noise measurements were used to calibrate the noise model.

The calibration process and the results of the modeling for all receptors along I-5 and Antonio Parkway are presented in this Section.

Noise Sensitive Receptors

Table 4.21-4 presents a numbered list of the representative noise sensitive receptors on MCB Camp Pendleton that were assessed for this analysis and the land use that each receptor represents. Table 4.21-4 also indicates which of the SOCTIIP Alternatives were analyzed for each receptor. At each receptor, noise levels for only the SOCTIIP Alternatives in the vicinity of the receptor (i.e. close enough to potentially result in an impact) were assessed. Noise sensitive land uses on the Base that may be impacted by the SOCTIIP Alternatives include residential areas, schools, parks including campground and recreation uses. Parking lots are not considered noise sensitive. The locations of these receptors are shown in Figure 4.6-3 in Section 4.6 (Affected Environment, Impacts and Mitigation Measures Related to Noise).

Noise receptors 1 through 5, 7, 9 and 13 are on Camp Pendleton. These receptors were chosen to best represent the representative worst-case conditions for all the noise sensitive uses in the vicinities of the SOCTIIP build Alternatives at Camp Pendleton. That is, the residential or other sensitive use is close to and/or has a high exposure to the alignment of a specific SOCTIIP build Alternative. At least one receptor was located in each area of concern. Several of the SOCTIIP build Alternative alignments are inside or near SOSB state parks or other public lands.

Measured Existing Noise Levels

Measurements of ambient noise levels on the base were conducted at the six receptors listed in Table 4.21-5. These measurements document the existing background noise levels in the areas surrounding the SOCTIIP build Alternatives. For sites near I-5 and Antonio Parkway, the measured noise levels were also used to calibrate the noise model.

The results of the noise measurements are presented in Table 4.21-6. The Receptor identification number (ID), description and existing land use are presented in the first three columns, respectively. The next two sets of two columns present the date and Leq noise levels of each measurement at the receptor.

For the sites along I-5, the two Leq noise level measurements agreed to ±2 dB. The consistency of these measurements was analyzed as required by the Caltrans Protocol. For details regarding noise level measurements and noise model calibration, refer to the Noise Assessment Technical Report.

The measurements do not reveal anything unexpected. Noise levels near I-5 were relatively high and were reduced as distance from the freeway was increased. Noise levels in areas away from roads and development were relatively low. Military helicopter operations were substantially louder than the background ambient levels in areas away from roads and development.

Modeled Noise Levels

The noise modeling for the SOCTIIP Alternatives is described in detail in Section 4.6.2 (Methodology Related to Noise).

Existing Peak Hour Noise Level Modeling Results

Along highways with congestion, the noisiest hour does not correspond with the hour of the highest traffic volume. During the hour with the highest traffic volume, congestion results in lower speeds which result in lower noise levels than other hours where traffic is free flowing. The hour that results in the highest noise levels is the hour where the traffic volume is the greatest and still remains at free flow. Section 4.21.7.2 discusses the traffic conditions that result in the worst hourly traffic volumes. Because the measurements were not necessarily taken during periods with these conditions and noise measurements were not performed for all receptors, existing peak noise hour levels were modeled. Table 4.21-6 presents the results of this modeling for each of the receptors along I-5 and Antonio Parkway. Table 4.21-6 also shows the NAC Activity Categories and the NAC for each receptor. Noise levels approaching or exceeding the NAC are shown in bold italics. Table 4.21-6 shows that for many receptors along I-5, the existing peak noise hour traffic noise levels currently approach or exceed the NAC. Along Antonio Parkway, the existing peak noise hour traffic noise levels approach or exceed the NAC at only receptor 186. This receptor is at a preschool playground directly adjacent to the road.

4.21.7.2 Methodology for Noise Related to Camp Pendleton

The methodology for assessing noise impacts is described in detail in Section 4.6.2.

4.21.7.3 Impacts for Noise Related to Camp Pendleton

Construction Impacts for Noise Related to Camp Pendleton

Noise levels from construction activities are measured against the applicable local municipality's Noise Ordinance to assess whether there are any short term noise impacts. However, there is not local noise ordinance for Camp Pendleton by which to make this comparison. Therefore, the Orange County and San Clemente Noise Ordinances were used as guidelines for evaluation of short term noise impacts.

Construction noise can reach high levels and be intrusive to surrounding areas. The following Sections identify the potential noise levels that could occur during various phases of construction, and the durations of these construction activities. The projected noise levels are then contrasted with accepted noise levels for residential, school and other noise sensitive land uses. Conflicts between construction noise and wildlife areas are not addressed in this Section but are addressed in Section 4.11 (Affected Environment, Impacts and Mitigation Related to Wildlife, Fisheries and Vegetation).

Although construction noise represents a short term impact on ambient noise levels, construction equipment and construction activities can generate high noise levels. Construction equipment

noise comes under the control of the United States Environmental Protection Agency's (EPA's) Noise Control Program (Part 204 of Title 40, Code of Federal Regulations).

Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. Construction noise activities can be divided into the following five broad categories based on their potential to generate noise:

(1) pile driving.
(2) heavy grading.
(3) general construction activities.
(4) nighttime demolition.
(5) haul routes.

Generally, construction will occur only during daytime hours. However, major bridge construction may occur on a 24 hour basis. Additionally, for the I-5 part of the I-5 Alternative, much of the construction may occur during the nighttime hours including demolition of many of the overpasses.

Construction Noise Associated with Pile Driving

Pile driving operations are responsible for very high peak or impact noise levels during construction. The EPA ("Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," December 31, 1971) reports that pile driving operations can result in peak noise levels of 90 to 105 dBA at 15 m (50 ft) with 100 dBA being typical. Table 4.21-7 presents distances to peak noise levels for pile driving operations from Alternatives which traverse the Base. The loud bangs from pile driving can occur every few seconds. Based on the experience with the San Joaquin Hills Transportation Corridor (telephone conversation with Mr. Sam Sims, TCA, January 2003) pile driving usually lasts about 1 to 1.5 weeks per pier or abutment. For most bridges, including wildlife crossings, there are two abutments and two piers. Therefore, pile driving for a typical bridge can last roughly four to six weeks.

The pile driving for flyovers can last much longer. Flyovers for the corridor build Alternatives would occur where the corridor joins I-5 with direct connectors. This would occur for the following Alternatives; the FEC-W, the FEC-M and the A7C-FEC-M. A flyover for this type of project would include two abutments plus up to 13 piers. Pile driving at these corridor/freeway interchanges could last up to 6 months for each flyover.

Based on a pile driving noise level of 100 dBA at 15 m (50 ft), noise levels at other distances can be forecast. At a distance of 150 m (500 ft), the pile driving noise might still be as high as 80 dBA. This noise level will decrease as the distance from the source increases.

The Orange County Noise Ordinance does not limit daytime noise on weekdays for construction activities. For nighttime hours, construction noise is limited to a peak noise of 70 dBA. Peak or impulsive noise levels are penalized by 5 dBA, effectively making the critical criterion 65 dBA. Noise levels above this limit that are not controlled in a manner consistent with the Noise Ordinance would be considered intrusive. At 850 m (2,800 ft), the maximum noise associated

with pile driving is projected to be 65 dBA. Therefore, pile driving during construction of the corridor Alternatives could not occur within 850 m (2,800 ft) of residences during the nighttime hours or during weekend periods without exceeding the County Noise Ordinance.

Similarly, the San Clemente Noise Ordinance allows construction noise levels up to 70 dBA measured at the nearest residential property line during weekday daytime hours (7:00 AM. to 6:00 PM). Pile driving anywhere in San Clemente closer than 500 m (1,600 ft) of residential areas would probably be in violation of the San Clemente Noise Ordinance, even it occurs during the weekday during daytime hours. Additionally, the Ordinance (Section 8.48.030 (o)) specifically prohibits pile driving in San Clemente on any day between the hours of 6:00 PM and 7:00 AM. Therefore, the ability to operate pile drivers within the San Clemente city limits may be severely limited.

Construction Noise Associated with Heavy Grading

After clearing vegetation and other preparatory work, an area will be ready for heavy grading which results in the grading of the site into roughly its final form. Large scrapers such as the Caterpillar 623 and Caterpillar 657 are used during heavy grading. Although pile driving can result in the highest peak noise levels, heavy grading can result in the highest average noise levels due to the constant noise generated by graders over extended periods of time.

Heavy grading operations will occur for about two years. However, this does not mean that at any one location there will be heavy grading for this entire period. For a typical location near the corridor, there would be 15 to 30 graders working for about two to three months.

Based on approximately 30 scrapers working near a noise sensitive area, the average noise levels at various distances were calculated and are presented in Table 4.21-8. Noise levels greater than 70 dBA will be experienced at distances less than 170 m (550 ft) from the grading equipment. Noise levels of 55 dBA may be heard at distances greater than 0.85 km (0.5 mi). These estimates do not consider the effects of topography or intervening structures.

The County of Orange does not limit construction noise during the weekday, daytime hours. The Orange County Noise Ordinance limits average noise levels (i.e., L50% levels) to 50 dBA during nighttime and weekend for all activities including construction. Noise levels above this limit that are not controlled in a manner consistent with the Noise Ordinance would be considered intrusive. Residences within 1,500 m (5,000 ft) would be impacted by heavy grading operations if they occur at night or during the weekend as defined in the Orange County Noise Ordinance.

For heavy grading in San Clemente, the City's Noise Ordinance would limit the maximum noise level to 70 dBA between 7:00 AM and 6:00 PM. on weekdays and Saturdays. Construction occurring outside these hours and on Sunday and holidays would be prohibited. Construction occurring within 150 m (500 ft) of residences would likely exceed 70 dBA, be an impact, and would require a variance from the City.

Construction Noise Related to General Construction Activities

General construction activities result in substantially lower noise levels than pile driving or heavy grading. During general construction, many different types of equipment may be operating including dozers, loaders, various kinds of trucks, pavers, cranes, etc. An estimate of general construction noise levels is presented in Table 4.21-9. The noise level is provided for various distances. The estimates are based on a typical situation and could vary either up or down by more than 10 dBA.

The County of Orange does not limit construction noise during the weekday, daytime hours. The Orange County Noise Ordinance limits average noise levels (i.e., L50% levels) to 50 dBA during nighttime and weekend for all activities including construction. Noise levels above this limit that are not controlled in a manner consistent with the Noise Ordinance would be considered intrusive. Residences within 275 m (900 ft) would be impacted by general construction operations if they occur at night or during the weekend as defined in the Orange County Noise Ordinance.

For general construction activities in San Clemente, the City's Noise Ordinance would limit the maximum noise level to 70 dBA between 7:00 AM and 6:00 PM on weekdays and Saturdays. Construction occurring outside these hours and on Sunday and holidays would be prohibited. Construction occurring within 27 m (90 ft) of residences would likely exceed 70 dBA. These activities would result in a noise impact and would require a variance from the City.

Construction Noise Related to Nighttime Demolition

Nighttime demolition would occur under the I-5 Alternative. Many of the I-5 overpasses would need to be demolished and much of this work would have to occur during the night, because I-5 would need to be restricted to a few lanes or shut down completely. Jackhammers and other heavy equipment are used extensively during demolition operations and peak noise levels of 95 dBA at 15 m (50 ft) are typical. Table 4.21-10 presents distances to peak noise levels for demolition operations.

Based on a demolition noise level of 95 dBA at 15 m (50 ft), noise levels at other distances can be forecast. At a distance of 150 m (500 ft), pile driving noise might still be as high as 75 dBA. This noise level will decrease as the distance from the source increases. At 850 m (2,800 ft) from the demolition operations, the peak noise levels will still reach 60 dBA.

The Orange County Noise Ordinance limits peak noise levels to 70 dBA during nighttime for all activities including construction. Peak or impulsive noise levels are penalized by 5 dBA, effectively making the critical criterion 65 dBA. Noise levels above this limit that are not controlled in a manner consistent with the noise ordinance would be considered intrusive. Similarly, the San Clemente Noise Ordinance allows construction noise levels up to 70 dBA measured at the nearest residential property line. Noise sensitive areas closer than 500 m (1,600 ft) of pile driving activities may be adversely impacted.

Construction Noise Related to Haul Routes

For many of the Alternatives, soil will either need to be hauled onto or from the project site. At this time, the number of haul trucks and the truck haul routes are not known. The more haul trucks on a road, the higher the potential for an adverse noise impact. A second factor would be the number of vehicles currently on the haul route. Haul trucks on a residential street that normally has 1,000 vehicles a day will have a greater impact than the same number of haul trucks on a major arterial roadway that normally has 40,000 vehicles per day. Other factors that affect the level of potential noise impact associated with hauling include the presence or absence of noise sensitive land uses along the haul route and the presence or absence of noise barriers along the haul route. All the build Alternatives are projected to either import or export soil. The amount of soil transported varies substantially depending on the Alternative.

Specific Construction Related Noise Impacts

The discussion above identifies specific potential construction related noise impacts for given construction situations. For example, if pile driving occurs during nighttime or weekend hours, as specified in the Orange County Noise Ordinance, and occurs within 850 m (2,800 ft) of residential areas, then an impact occurs. If pile driving occurs at further distances or only occurs during daytime hours, then no impact would occur. Similar situations occur for heavy grading and general construction. If heavy grading occurs within 1,500 m (5,000 ft) or general construction within 275 m (900 ft) of residential uses during weekend or nighttime hours, then impacts would occur. As discussed previously, all the build Alternatives will import or export soil. No haul routes are identified at this time, so all the build Alternatives have the potential to cause adverse noise impacts associated with hauling materials. Nighttime demolition within 850 m (2,800 ft) of residential uses would also result in an adverse noise impact.

Table 4.21-11 presents a summary of potential construction noise impacts on Camp Pendleton. For each build Alternative, the potential for construction noise impacts is identified. As shown in Table 4.21-11, the potential for noise related construction impacts is not refined at this time because detailed construction phasing and programs for the individual build Alternatives have not been fully developed. For example, examination of the FEC Alternatives indicates that if nighttime construction is not necessary for these Alternatives, then no construction noise impacts would occur, with the exception of the potential haul routes.

Long Term Impacts for Noise Related to Camp Pendleton

The FHWA/Caltrans NAC criteria are only applicable to areas along new roads constructed by the SOCTIIP Alternatives or existing roads that will be modified by the SOCTIIP Alternatives (i.e. addition of lanes). In terms of the FHWA/Caltrans NAC, noise impacts occur when the predicted future with SOCTIIP Alternatives noise levels approach or exceed the NAC for uses along new roads constructed by the SOCTIIP Alternatives or existing roads that will be modified by the Alternatives (i.e. addition of lanes). The NAC are in terms of the worst hourly Leq traffic noise impact on a regular basis for the design year. The NAC were presented previously in Table 4.21-6. Approaching the NAC is considered as a noise level within one dB of the NAC.

For residential areas, the noise abatement criterion is 67 dBA Leq(h). Noise levels of 66 dBA Leq(h) in these areas are considered approaching the NAC.

Even if the predicted noise level does not approach or exceed the NAC, traffic noise impacts can occur when the with project noise levels substantially exceed the existing noise levels. Caltrans has established a substantial increase to be a 12 dBA increase in the peak hour Leq noise level.

In this Section, long term noise impacts resulting from the implementation of the Alternatives are assessed. Future traffic noise levels at receptors representing noise sensitive land uses near each of the build Alternatives were projected through traffic noise modeling. These noise levels are compared to the FHWA/Caltrans NAC. For receptors where the future with project noise level approaches or exceeds the NAC or is 12 dB or more than the existing levels, noise abatement must be considered. Noise abatement is considered in Section 4.6.4 for these receptors.

Modeled Noise Levels for the SOCTIIP Alternatives

Tables 4.21-12 to 4.21-17 present future project noise levels at the receptors for the FEC-W, FEC-M, A7C-FEC-M and CC Alternatives. Table 4.6-18 presents the same data for the non-corridor build Alternative (I-5). For each receptor, the FHWA/Caltrans NAC and activity category are presented along with the existing noise level. The existing noise level is the existing peak noise hour noise level presented in Table 4.21-6 for receptors along I-5 or the measured existing noise level presented in Table 4.21-5 for all other receptors. For each of the project Alternatives, the future with project noise level is presented along with the increase over existing conditions, in parenthesis. Noise levels and increases where the noise level approaches or exceeds the NAC or exceeds the existing noise level by 12 dB or more are shown in **bold**.

For several receptors along I-5, the locations where measurements were performed were inside the right-of-way of the freeway with some of the build Alternatives. For these receptors, another receptor location nearby, outside the right of way, was selected for this analysis. These receptors are indicated with a letter attached to the receptor ID. Similarly, some of the receptor locations where noise levels were measured in the vicinity of the corridor build Alternatives were not representative of the worst-case noise sensitive uses for all Alternatives. Therefore, analysis receptors were added near the measured receptor locations. These receptors are also indicated with a letter attached to the receptor ID. For these receptors, the existing noise level was taken to be the same as the corresponding non-lettered receptor.

Far East Corridor-West and Far East Corridor-Modified Alternatives

Table 4.21-12 presents the future noise levels at receptors along the FEC-W-Ultimate and FEC-M-Ultimate. Table 4.21-13 presents the same data for the Initial configurations of these FEC Alternatives. The data presented in each table are discussed by alternative/variation below in the following Sections.

FEC-W-Ultimate. Table 4.21-12 shows that the FEC-W-Ultimate is projected to impact four of the eight receptors analyzed on Camp Pendleton. These four receptors represent residences in San Mateo Point (Receptors 007), a preschool (Receptor 003) and two campgrounds (Receptors

001 and 009). The impact at Receptors 009 (San Mateo Camp Ground) is due solely to the increases in noise levels resulting from the FEC-W-Ultimate. Noise abatement will need to be considered for all four of these receptors with the FEC-W-Ultimate.

FEC-W-Initial. Table 4.21-13 shows that the FEC-W-Initial is projected to impact the same four receptors as are impacted by the FEC-W-Ultimate. While noise levels along the FEC-W-Initial are slightly lower than under the FEC-W-Ultimate, the decreases are not great enough to eliminate any impacts. Noise abatement will need to be considered for all four of these receptors with the FEC-W-Initial.

FEC-M-Ultimate. Table 4.21-12 shows that the FEC-M-Ultimate is projected to impact four of the eight receptors analyzed on Camp Pendleton. These four receptors represent residences in San Mateo Point (Receptors 007), a preschool (Receptor 003) and two campgrounds (Receptors 001 and 009). The impact at Receptors 009 (San Mateo Camp Ground) is due solely to the increases in noise levels resulting from the FEC-M-Ultimate. Noise abatement will need to be considered for all four of these receptors with the FEC-M-Ultimate.

FEC-M-Initial s. Table 4.21-13 shows that the FEC-M-Initial is projected to impact the same four receptors as are impacted by the FEC-M-Ultimate. While noise levels along the FEC-M-Initial are slightly lower than under the FEC-M-Ultimate, the decreases are not great enough to eliminate any impacts. Noise abatement will need to be considered for all four of these receptors with the FEC-M-Initial.

Central Corridor-Complete Alternative

Tables 4.21-14 and 4.21-15 show that the CC Alternative is not projected to have any adverse noise impacts on Camp Pendleton.

Alignment 7 Corridor-Far East Crossover-Modified Alternative

Tables 4.21-16 and 4.21-17 present the future noise levels at receptors along the A7C-FEC-M Alternative. The data presented in each table are discussed by variation in the following Sections.

A7C-FEC-M-Ultimate. Table 4.21-16 shows that the A7C-FEC-M-Ultimate is projected to impact four of the eight receptors analyzed on Camp Pendleton. These four receptors represent residences in San Mateo Point (Receptors 007), a preschool (Receptor 003) and two campgrounds (Receptors 001 and 009). The impact at Receptors 009 (San Mateo Camp Ground) is due solely to the increases in noise levels resulting from the A7C-FEC-M-Ultimate. Noise abatement will need to be considered for all four of these receptors with the A7C-FEC-M-Ultimate.

A7C-FEC-M-Initial. Table 4.21-17 shows that the A7C-FEC-M-Initial is projected to impact the same four receptors as are impacted by the A7C-FEC-M-Ultimate. While noise levels along the A7C-FEC-M-Initial are slightly lower than under the A7C-FEC-M-Ultimate, the decreases are

not great enough to eliminate any impacts. Noise abatement will need to be considered for all four of these receptors with the A7C-FEC-M-Initial.

Non Corridor Build Alternatives

Table 4.21-18 presents the future noise levels at receptors along the non-corridor build Alternatives (I-5 Alternative). The data presented in each table are discussed for these Alternatives in the following Sections.

I-5 Alternative. Table 4.21-18 shows that the I-5 Alternative is projected to impact Receptor 007 (San Mateo Point housing). Noise abatement will need to be considered for this receptor impacted by the I-5 Alternative.

No Action Alternatives

The No Action Alternatives do not include the construction of any SOCTIIP related transportation improvements in the study area. Therefore, these Alternatives will not result in adverse construction or operations noise impacts.

Summary of Noise Impacts on the Military Mission

Noise levels were modeled for the SOCTIIP Alternatives that would potentially impact each receptor. Peak hour noise levels were calculated and compared to the appropriate FHWA/Caltrans NAC. Noise abatement was considered for receptors projected to be exposed to noise levels that approach or exceed the applicable NAC. Table 4.21-19 summarizes the direct adverse noise impacts under each SOCTIIP Alternative. These are the noise impacts from the noise generated on the highways that will be constructed or physically altered by the specific Alternative. For each SOCTIIP build Alternative, the number of residences, businesses, schools and parks that would be impacted by traffic noise due to the implementation of the Alternative are shown. Impacted means that they will experience noise levels approaching (i.e. within 1 dB of) or exceeding the FHWA NAC, or they will experience a substantial increase as defined by Caltrans (12 dBA or greater). The bottom part of the table presents the number of residences, businesses, schools and parks impacted with the implementation of the recommended mitigation presented below in Section 4.21.7.4. As shown in Table 4.21-19, with mitigation, the SOCTIIP build Alternative on and adjacent to the Base (FEC-M, FEC-W, A7C-FEC-M, CC and I-5 Alternatives) would not result in long term adverse noise impacts on sensitive uses on Camp Pendleton.

4.21.7.4 Mitigation for Noise Related to Camp Pendleton

Mitigation for Construction Noise Impacts

This Section identifies methods of minimizing the impacts of construction noise under the SOCTIIP build Alternatives. As discussed, the heavy grading, pile driving and general construction phases of the build Alternatives may all generate substantial adverse noise impacts if these activities occur during nighttime or weekend hours. Haul route trucks and nighttime

demolition may also generate adverse noise impacts. Construction noise mitigation measures recommended for the SOCTIIP build Alternatives are described below.

Measure N-2: Construction Equipment. During construction activities, the construction contractor will ensure that the construction vehicles and equipment shall be maintained properly in tune as required by local ordinances. Additionally, each internal combustion engine used on the job shall be equipped with a "residential" or "hospital" grade muffler.

Measure N-3: Schools Adjacent to Construction Zone. Prior to construction activities in the vicinity of any school, the construction contractor shall be responsible for developing an agreement with Capistrano Unified School District, Camp Pendleton and private school operations as appropriate, that would mitigate construction noise levels in classrooms and playfields at the affected schools to an agreed construction noise performance standard. Each agreement shall be completed prior to the initiation of any grading on construction within 600 m (2,000 ft) of the school grounds. Examples of noise mitigation options include construction of temporary soundwalls, and limitation of some of the noisiest construction activities to periods when the schools are closed (e.g., the summer for the two public schools).

Measure N-4: Haul Routes. Prior to construction activities, the construction contractor shall establish haul routes that avoid passing through or adjacent to residential and school areas to the extent feasible. In general, truck routes should be directed away from residential areas and onto the I-5 to minimize the construction truck intrusion. If haul routes must pass through residential areas, haul route traffic should be limited to daytime hours (7 AM to 8 PM). The haul routes will be developed in conjunction with the applicable local jurisdictions.

Measure N-5: Nighttime Demolition. Nighttime demolition activities may occur under the I-5 Alternative. The implementing agency shall ensure that residents within 300 m (1,000 ft) of the demolition area are notified in advance that demolition activities will occur. Qualified residents within 300 m (1,000 ft) requesting relocation during the nighttime demolition activities should be provided with hotel vouchers at a local hotel but outside the demolition impact zone by the implementing agency.

Measure N-6: Noise Complaint Officer. Prior to construction activities, the construction contractor shall identify a Noise Complaint Officer and establish a Noise Complaint hotline. The Noise Complaint Hotline shall be able to receive calls on a 24 hour basis. Any complaints regarding construction shall be forwarded to the Noise Complaint Officer. The Noise Complaint Officer shall record the general description of the complaint, the time the offending noise occurred and the location of the complaint. The Officer shall attempt to measure the noise that generated the complaint within the following 24 hours. If the noise levels exceed those allowed during nighttime construction activities under the local Noise Ordinance, or activities are occurring that are inconsistent with the noise mitigation measures, then the construction contractor shall be responsible for correcting those problems within the following 48 hours. The noise levels measured and any corrective actions shall be recorded with the original complaint form.

Mitigation Measures for Long Term Noise Impacts

Section 4.21.7.2 identified receptors along the SOCTIIP build Alternatives on Camp Pendleton that are projected to approach or exceed the FHWA/Caltrans NAC. Noise abatement must be considered for each of these locations to reduce the noise levels. In this Section, noise abatement is considered for each area where a receptor indicates that the future with project noise level approaches or exceeds the applicable NAC by Alternative. The only practical noise abatement method to reduce exterior noise levels is sound barriers which includes walls, berms or combinations of walls and berms. Table 4.21-20 identifies the recommended height and attenuation level for each sound barrier for each receiver by Alternative. Figures 4.21-11 to 4.21-14 show the locations of these sound barriers. For noise abatement to be provided, it must be reasonable and feasible as defined by FHWA/Caltrans criteria. Long term impact mitigation measures are recommended for the SOCTIIP build Alternatives, as described below. These mitigation measures address the long term noise impacts of the SOCTIIP build Alternatives. The mitigation measures include noise abatement strategies to address impacts identified at the receptor locations that exceed the designated criteria.

Measure N-7: Final Noise Analysis. During final design of the selected alternative, the TCA or the implementing agency/agencies will prepare a final noise analysis based on the detailed and finalized mapping developed during final design for the selected Alternative. Feasibility considerations for each sound barrier must meet FHWA/Caltrans criteria including a minimum of 5 dB of noise reduction at the impacted receiver. Additional feasibility considerations are (1) topography, (2) access requirements for driveways, ramps, etc; (3) the presence of cross streets, (4) other noise sources in the area and (5) safety considerations. The TCA or the implementing agency/agencies will finalize noise mitigation requirements for the selected Alternative and coordinate design with the local agency.

Measure N-8: Long Term Noise Impacts. During construction, the TCA or the implementing agency/agencies shall implement permanent sound barriers, including walls, berms or combinations of walls and berms. The sound barrier and/or supplemental berm must provide a minimum of 5 dB of noise reduction at the impacted receiver as refined during final design. The locations of these proposed sound barrier/berms are shown on Figures by Alternative in Appendix K. The construction contractor will be responsible for constructing the sound barrier/berm for the selected Alternative and as refined during final design. As appropriate, the Final Noise Assessment Technical Report will be reviewed and the sound barrier/berm height recommended in the Final Noise Assessment Technical Report will serve as a guideline in determining the final barrier height requirements. Other pertinent information from the Final Noise Assessment Technical Report will be incorporated into final design as appropriate. The Final Noise Assessment Technical Report provides specific recommendations that ate then translated into the construction documentation (i.e., final design) for build purposes.

Commitments Related to Long Term Noise Impacts

In addition to mitigation measures N-7 and N-8, which identify specific actions to avoid, minimize or compensate for potential long term adverse noise impacts, the following commitments are included in the project alternatives:

Commitment NC-1: Determination of Reasonableness. During final design, the TCA or the implementing agency/agencies shall determine the reasonableness of soundwall/berm placement and consider the life cycle of the sound barrier, the potential environmental impact of the mitigation, opinions of impacted residents, input from the public and local agencies, and social, economic and environmental factors consistent with the FHWA/Caltrans feasibility criteria.

Commitment NC-2: Soundwall/Floodplain. During final design, if the TCA or the implementing agency/agencies locates a soundwall/berm in a floodplain, the TCA or the implementing agency/agencies shall prepare an evaluation of the effects of the soundwall on the floodplain in accordance with appropriate guidelines and design manuals. The design and location will be determined to ensure there is no exceedance of one foot elevation of the base floodplain. Early recognition and analysis of potential problem areas will be made to determine if wall openings or staggered wall openings are viable for those barriers.

Table 4.21-21 lists these mitigation measures and the Alternatives to which they apply.

4.21.8 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR AIR QUALITY RELATED TO CAMP PENDLETON

4.21.8.1 Affected Environment for Air Quality Related to Camp Pendleton

MCB Camp Pendleton was included in the study area for the air quality impact analysis as described in detail in Section 4.7 (Affected Environment, Impacts and Mitigation Measures Related to Air Quality). Air quality is studied in terms of the SCAB even though MCB Camp Pendleton is in the San Diego Air Basin (SDAB) because air quality is a regional issue and cannot be isolated into smaller areas following jurisdictional or property boundaries. Therefore, the affected environment for air quality for SOCTIIP is described in Section 4.7 and cannot be isolated to just Camp Pendleton.

4.21.8.2 Methodology for Air Quality Related to Camp Pendleton

Section 4.7.2 (Methodology Related to Air Quality) describes the methodology used to quantify air quality impacts including state and federal standards and the assumptions assumed in the data used to calculate air quality impacts.

4.21.8.3 Impacts for Air Quality Related to Camp Pendleton

Construction Impacts for Air Quality Related to Camp Pendleton

During construction, the SOCTIIP build Alternatives could result in short term adverse impacts related to air quality on Camp Pendleton.

Long Term Impacts for Air Quality Related to Camp Pendleton

None of the local air quality impacts of the corridor, arterial and I-5 Alternatives results in an exceedance for CO. For all build Alternatives, the future CO emissions are projected to be in compliance with the 1-hour and 8-hour state and federal AAQS, and therefore, none of the build Alternatives will result in an adverse impact on CO levels.

Future PM_{10} concentrations are projected to be in compliance with the federal 24 hour PM_{10} AAQS for all build alternatives. However, the PM_{10} concentrations for all build Alternatives are projected to exceed the state AAQS. This is because the background PM_{10} emissions are projected to be over the state AAQS with or without the project. For additional discussion regarding the impacts of the SOCTIIP Alternatives on state AAQS, refer to Sections 4.7 and Section 5.0 (Cumulative Impacts). The increase in PM_{10} levels due to the build Alternatives is very small. No impacts on local PM_{10} levels will occur with any of the build Alternatives. None of the build Alternatives will result in local air quality impacts.

Ozone (O_3) and nitrogen dioxide (NO_2) are discussed in detail in Section 4.7; both are regional air pollutants and are not assessed on a local basis such as for Camp Pendleton. As detailed in Section 4.7, regional emissions for O_3 were analyzed using O_3 precursors. Summertime precursors include volatile organic compounds and NO_x and wintertime precursors include NO_x and CO. All the SOCTIIP Alternatives on and near Camp Pendleton (FEC-M, FEC-W, A7C-FECM and I-5 Alternatives) result in increases greater than 25 kilograms per day (55 lbs per day) in NO_x emissions, for the total alignment of each alternative. Tables 4.7-24 to 4.7-26 in Section 4.7 discuss regional emissions for the FEC-M and FEC-W Alternatives and Tables 4.7-30 to 4.7-32 discuss regional emissions for the A7C-FEC-M Alternative. Tables 4.7-36 to 4.7-38 discuss regional emissions for the I-5 Alternative. Tables 4.7-39 and 4.7-40 discuss regional emissions for the No Project Alternatives. Additional discussion regarding regional emissions is provided in Section 4.7.

Compliance with Air Quality Planning

As described in detail in Section 4.7.3.4 (compliance with Air Quality Planning), the SOCTIIP was evaluated for consistency with the Air Quality Management Plan (AQMP) and conformity with the Clean Air Act (CAA). The FEC-W, FEC-M and A7C-FEC-M Alternatives were determined to be consistent with the assumptions in the AQMP and the Regional Transportation Plan (RTP). The I-5 and No Action Alternatives do not match the project description in the RTP.

FHWA and the Southern California Association of Governments (SCAG) will be responsible for making the determination on the uniformity by the SOCTIIP with the CAA, as discussed in detail in Section 4.7.3.4. The conformity determination will be made and any conformity requirements met prior to FHWA issuing the Record of Decision for the SOCTIIP.

4.21.8.4 Mitigation for Air Quality Related to Camp Pendleton

The following mitigation measures will substantially reduce the short term adverse air quality impacts during construction of the SOCTIIP build Alternatives. However, during construction, there will still be adverse short term air quality impacts, even with these mitigation measures.

Particulate Emission (PM_{10}) Control

Measure AQ-1. During construction, contractor specifications shall incorporate directions to contractors to control fugitive dust. Fugitive dust shall be controlled by regular watering, paving construction roads, or other dust preventive measures, as defined in SCQAMD Rule 403.

After clearing, grading, earth moving or excavation the following activities will be performed by the construction contractor:

a. Seeding and watering will be performed until viable vegetation cover is in place in inactive areas.
b. Soil binders will be spread.
c. Areas will be wet down sufficiently to form a crust on the surface. Repeated soakings will be performed as necessary to maintain this crust.

Measure AQ-2. During construction, measures contained in Tables 1 and 2 of SCAQMD Rule 403 will be implemented by the construction contractor. Control of particulate emissions from construction activities is best controlled through the requirements contained in SCAQMD's Rule 403, Tables 1 and 2. Tables 1 and 2 are reproduced here as Figures 4.7-5, 4.7-6 and 4.7-7. The measures in these tables are presented as an option to air quality monitoring in Rule 403. Figure 4.7-5 contains measures such as maintaining an adequate moisture content in the soil, watering grading areas, establishing ground cover in inactive areas and watering unpaved roads. Figures 4.7-6 and 4.7-7 identify additional measures that are applied during high wind conditions. The mitigation measure, therefore, is to require that the measures contained in Tables 1 and 2 of Rule 403 be used. This potentially results in a much higher reduction of particulate emissions than if the air monitoring option contained in Rule 403 was employed. The air monitoring option requires monitoring around the project site, and as long as pollutant levels do not exceed threshold limits, no pollutant emission reduction measures are employed. The measure would be triggered prior to the initiation of grading.

Measure AQ-3. All public streets adjacent to the project site shall be swept once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water). This condition would apply to those areas where construction traffic leaves the project site and travels onto public roadways.

Measure AQ-4. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site each trip.

Construction Equipment Emission Control

Emissions generated by construction equipment during construction of the build Alternatives will exceed SCAQMD thresholds. The generation of these emissions is almost entirely due to engine combustion in construction equipment and employee commuting. The measure below addresses these emissions.

Measure AQ-5. During final design, contractor specifications shall require that contractors implement the following measures:

- Use low emission mobile construction equipment.
- Maintain construction equipment engines by keeping them tuned.
- Use low sulfur fuel for stationary construction equipment. This is required by SCAQMD Rules 431.1 and 431.2.
- Utilize existing power sources (i.e., power poles) when feasible. This measure would minimize the use of higher polluting gas or diesel generators.
- Configure construction parking to minimize traffic interference.
- Minimize obstruction of through-traffic lanes. When feasible, construction should be planned so that lane closures on existing streets are kept to a minimum.
- Schedule construction operations affecting traffic for off-peak hours.
- Develop a traffic plan to minimize traffic flow interference from construction activities (the plan may include advance public notice of routing, use of public transportation and satellite parking areas with a shuttle service.
- Include in construction grading plans a statement that work crews shut off equipment when not in use.
- Support and encourage ridesharing and transit incentives for the construction crew.

Measure AQ-6. During construction, any material deposited onto paved roads due to a major storm event must be removed within 72 hours of the event by the contractor. Additional time is allowed for mudslides or similar events that block traffic over the material. In the event of road closures due to mudslides or other overwhelming accumulations of material, public access should be restricted until all the material is removed.

Measure AQ-7. This control measure specifies three "preventive" and one "mitigative" control option(s) that would be mandatory, of all unpaved road connections with paved public roads. The four mandatory control options include:

- Paving the last 100 ft from an unpaved roadway connection with a paved road.
- Chemical stabilization of the last 100 ft from an unpaved roadway connection with a paved road at sufficient frequency and concentration to maintain a stabilized surface at all times.
- Installation of dirt removal devices (e.g., tire cleaning device, grizzlies, etc.).
- Cleaning of public paved road surface at any time visible track-out occurs.

4.21.9 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR WATERWAYS, FLOODPLAINS AND HYDROLOGIC SYSTEMS RELATED TO CAMP PENDLETON

4.21.9.1 Affected Environment for Waterways, Floodplains and Hydrologic Systems Related to Camp Pendleton

The hydrology of Camp Pendleton is influenced by several factors, including those that are natural (topographic, geologic, climatic, etc.) and human influenced (land use, dams, etc.). Proper management and stewardship of water resources are fundamental to natural resource and land use sustainability. This Section provides an overview of hydrologic features in the SOCTIIP study area that are also on Camp Pendleton. Also discussed are Camp Pendleton's water quality, supply and use. Camp Pendleton derives all of its water supply from the groundwater resources on the Base. Groundwater available for use is limited by the annual safe yield established for the basins to ensure that groundwater is not depleted. Natural recharge of groundwater occurs through intermittent surface runoff, percolation into the alluvium of stream beds and recycling of high quality sewage effluent into alluvial deposits.

Mountain ranges divide the Base into four main watersheds, or drainage areas: Santa Margarita, Las Flores, San Onofre, and San Mateo. The Alternatives that enter the base cross the lower coastal reaches of the San Onofre and San Mateo watersheds.

<u>San Mateo Creek Watershed</u>

The San Mateo Creek watershed covers nearly 347 sq km (134 sq mi) in Orange, Riverside and San Diego Counties. This watershed drains the south side of the Santa Ana Mountains and the east side of the Elsinore Mountains. Major tributaries to San Mateo Creek include Cristianitos Creek, Bluewater Canyon, Los Alamos Canyon and Tenaja Canyon. Existing land uses include urban residential, open space, vacant land and military uses. Elevations range from sea level at the ocean outfall to 914 m (3,000 ft) in the headwater areas. Slopes and grades range from 2 to 19 percent. Streams, drainages and canyons are abundant in the higher elevation regions of the watershed, with any drainage improvements primarily existing in the lower urbanized areas. The majority of the soils are clayey, with more permeable soils and sands existing nearer the rivers and streams.

Approximately 7,365.3 ha (18,200 ac) of the San Mateo Creek watershed's 35,482.9 ha (87,680 ac) is on the Base. All training facilities in the northern portion of the Base (San Mateo, 62 Area,

Cristianitos, 63 Area, and Talega 64 Area) as well as the housing areas in 51 Area are served by water in the San Mateo Creek watershed aquifer. Safe annual yield for this watershed is 3,453,749 cubic meters (2,800 acre-feet). Excess water generated by this aquifer is allocated to the agricultural lease adjacent to SOSB Cristianitos Subunit 1. Potable water wells used by MCB Camp Pendleton and the tenant who leases the agricultural land upstream of I-5 are located in the 100-year floodplain of the San Mateo Creek watershed. The nearest production well (Well 9S/07W-11K1) is approximately 3,100 m (10,300 ft) upstream of the Alternatives that go through the Base. There is also a test well, to monitor groundwater levels, within 100 m (300 ft) of the Alternatives' I-5 junction.

San Onofre Creek Watershed

The San Onofre Creek watershed covers nearly 111 sq km (43 sq mi) and is entirely in San Diego County. It drains the east side of the Santa Margarita Mountains in the Cleveland National Forest, with Camp Pendleton occupying nearly the entire watershed. Existing land uses include military-related uses and relatively small residential areas near the ocean. Elevations range from sea level at the ocean outfall to 853 m (2,800 ft) in the headwater areas. Slopes and grades are moderate to steep and range from 20 to 37 percent. Streams, drainages and canyons are abundant in the higher elevation regions of the watershed, with any drainage improvements primarily existing in the lower urbanized areas downstream from I-5. The soil types are predominantly clayey in the west half of the watershed and much more permeable in the east half. Sandy soils also exist mainly near the streams and riverbeds.

All of San Onofre Creek watershed's 11,137 ha (27,520 ac) are located on the Base. San Onofre Creek watershed's aquifer supplies the San Onofre (52 Area) and Horno (53 Area) training facilities on Camp Pendleton as well as San Onofre Recreation Beach. Safe annual yield for San Onofre Creek is 870,838.2 cubic meters (760 acre-feet). No production wells are within the study area for the Alternatives; however, percolation basins located on the north side of I-5 are adjacent to the I-5/Basilone crossing of the Alternatives.

Groundwater Data Review for the San Onofre Creek Watershed

Potential project impacts to groundwater quality and recharge were addressed at the regional watershed level. The following is a review of San Onofre Creek watershed monitoring data, including, where available: groundwater basin hydrogeology, depth to groundwater, water development and sustained yield, and existing sampling data from groundwater wells in the vicinity of this Alternative.

Groundwater Basin Hydrogeology

The San Onofre groundwater basin consists of alluvium, terrace deposits, and channel deposits. The alluvium varies in thickness from about 12 m (40 ft) at the junction of the north and south forks of the creek, to a maximum of about 30 m (100 ft) at the coast (Leedshill and Herkenhoff, 1988). The San Mateo Formation underlies the alluvium in the lower portion of the basin. The surface area of the basin consists of about 305 ha (750 ac) of alluvium, terrace, and channel

deposits plus about 160 ha (400 ac) underlain by the San Mateo Formation (Leedshill and Herkenhoff, 1988).

Geophysical tests indicate that the San Mateo Formation underlies the alluvium in the San Onofre Basin at about the same depths as it underlies the San Mateo Basin. Modeling results indicate that the lower San Mateo Basin is hydrologically connected with the lower San Onofre Basin, although the connection is weak (NBS/Lowry, 1991). Based upon MODFLOW modeling, the estimated total storage capacity of San Onofre Basin is about 7.6 x 10^7 cubic meters (m^3) (62,000 acre-feet (ac-ft)), including storage in both the upper alluvium and in the San Mateo Formation (NBS/Lowry, 1994).

Natural recharge to the San Onofre groundwater basin occurs primarily through infiltration of surface water from San Onofre Creek and, to a lesser degree, by infiltration of precipitation. Stream flow is rapidly absorbed into the aquifer through the underlying permeable sand and gravel. Artificial recharge of the basin takes place through the percolation of treated effluent from MCB Camp Pendleton's sewage treatment plants. Wastewater effluent is discharged to disposal ponds.

Overview of Existing Groundwater Data

Groundwater Levels

Water level data were collected for the basin for the periods between 1962 and 1986. Depth of groundwater in the San Onofre Basin has historically been shallow, ranging between about 1.5 and 15 m (5 and 50 ft) below ground surface (Leedshill and Herkenhoff, 1988).

Groundwater flow direction generally mimics surface water flow direction in the basin moving southwest from the upper end of the basin downstream to the coast. Groundwater discharges at the coast or offshore where water-bearing deposits are in contact with the ocean.

Water Development

The San Onofre Basin is one of four groundwater basins located at MCB Camp Pendleton from which the Base obtains its water supply. Five potable wells are located within the San Onofre Basin (Well Nos. 9/6-19D5, 9/6-19D4, 9/6-19D6, 9/6-19D2, and 9/6-19D7). These wells are located in the lower portion of San Onofre Basin, about one mile from the coast, and derive water from both the alluvium and the San Mateo Formation (Parsons, 1995). Annual pumping of groundwater for potable use from San Onofre Basin averaged 750,000 m^3 (608 ac-ft) for the period between 1975 and 1986. Groundwater pumping from this basin for agricultural irrigation ceased in 1965 (Leedshill and Herkenhoff, 1988).

Groundwater Quality

Based on historical samples, taken prior to 1994, primary and secondary water standards are generally met by the groundwater pumped from the San Onofre Basin. Groundwater samples from the San Onofre Basin exceeded secondary standards for conductivity (50 percent of

samples from Well No. 9/6-19D2) and TDS (95 percent of samples from Well No. 9/6-19D2) (Parsons, 1995). Groundwater samples collected from Well Nos. 9/6-19D5 and 9/6-19D7 in 1994 also exceeded standards for iron and TDS. Sodium concentrations exceeded the recommended level of 20 mg/l in most samples. The average hardness was about 300 mg/l as $CaCO_3$, so water must be softened for use as boiler feed (Leedshill and Herkenhoff, Inc., 1988).

4.21.9.2 Methodology for Waterways, Floodplains and Hydrologic Systems Related to Camp Pendleton

The methodology for determining impacts to floodplains, waterways and hydraulic systems is described in detail in Section 4.8.2 (Methodology Related to Floodplains, Waterways and Hydrologic Systems).

4.21.9.3 Impacts for Waterways, Floodplains and Hydrologic Systems Related to Camp Pendleton

Construction Impacts for Waterways and Hydrologic Systems Related to Camp Pendleton

The FEC-W, FEC-M and A7C-FEC-M Alternatives crossing at San Mateo Creek includes multiple rows of piers in the 100-year floodplain area, a total of approximately 116 sq m (1,245 sq ft). Pier locations for the crossing of San Onofre Creek will be determined during final design of these Alternatives. A larger area would be required for construction of the pile caps for the piers at the Alternatives crossings but this would be a temporary impact during construction.

Long Term Impacts for Waterways and Hydrologic Systems Related to Camp Pendleton

San Mateo Creek

Based on the hydraulic results for the 100-year Expected Value discharge, the FEC-W, FEC-M and A7C-FEC-M Alternatives as currently designed would not present an adverse impact to the 100-year floodplain. The maximum increase in water surface elevation is approximately 0.02 m (0.07 ft) and occurs at cross sections 633 (2075) and 581 (1907).

There are no residential structures in the 100-year floodplain in the Alternatives study area at San Mateo Creek. Several agricultural buildings are in the San Mateo Creek 100-year floodplain, approximately 800 m (2,600 ft) upstream of the Alternatives bridge crossing. Potable water wells used by MCB Camp Pendleton and the tenant who leases the agricultural land upstream of I-5 are also located in the 100-year floodplain. The nearest production well (Well 9S/07W-11K1) is approximately 3,100 m (10,300 ft) upstream of the Alternatives. These facilities are upstream of the area that would be affected by increased 100-year flood elevations due to the Alternatives. There is a test well, to monitor groundwater levels, within 100 m (300 ft) of the Alternatives. In addition, MCB Camp Pendleton has planned percolation basins in the San Mateo Creek floodplain in the agricultural area, with the nearest proposed basin approximately 450 m (1,500 ft) upstream of the Alternatives. The Alternatives crossing would increase the estimated 100-year flood in the vicinity of the bridge by a maximum of approximately 0.02 m (0.07 ft). The estimated increase in the 100-year flood would increase the flood elevations at the

test well and the proposed percolation ponds. There are extensive crop lands in the San Mateo Creek 100-year floodplain upstream of the project area. The area is generally used for row crops and is in production through the winter. The existing channel provides an approximate level of protection for the 50-year Expected Value flood. The area appears to be part of the historic San Mateo Creek floodplain, which has been graded and leveled for farming. The area also includes greenhouses and water wells, which serve both the agricultural area and MCB Camp Pendleton. Impacts to the 100-year flood elevations are limited to approximately 1,200 m (3,900 ft) upstream of the proposed Alternatives crossing. The area predominantly consists of crop lands. The greenhouse areas and production wells would not be affected.

The bridge piers of these Alternatives encroach into the 100-year floodplain of San Mateo Creek. For the 100-year Expected Value event, the average channel velocity at the bridge remains the same as that during existing conditions at approximately 2.8 m/sec (6.0 ft/sec). Because the average channel velocity will not change with the introduction of additional bridge piers in San Mateo Creek, there will not be an adverse impact due to scour.

The addition of impervious road surfaces through SOSB Cristianitos Subunit 1 would decrease the infiltration rate of surface water runoff to the San Mateo Creek aquifer. Because this may result in decreased safe annual yield and since it will conflict with the Military Mission, this decrease in yield is considered to be an adverse impact.

No adverse impacts due to road closures on the Base during 100-year flood events are expected to occur as a result of the FEC-M, FEC-W and A7C-FEC-M Alternatives.

San Onofre Creek

Based on the hydraulic results for the 100-year Expected Value discharge, the FEC-M, FEC-W and A7C-FEC-M Alternatives as currently designed would not present an adverse impact to the 100-year floodplain. The maximum increase in water surface elevation is approximately 0.13 m (0.43 ft) and occurs just upstream of the old Pacific Coast Highway (PCH) bridge at cross section 206 (675). The existing 100-year floodplain includes the existing access road under the I-5 on the south side of San Onofre Creek and the Beach Club Road low flow crossing at San Onofre Creek, both of which are on MCB Camp Pendleton. Both roads would be flooded under existing conditions. The FEC Alternatives result in greater flood depths over the existing access road under the I-5; however, the FEC Alternatives would not adversely affect Beach Club Road. The percolation basins adjacent to the crossing, east of the I-5, are within the existing 100-year floodplain but would not be adversely affected by these Alternatives.

There are no residential structures, crops or non-residential buildings in the San Onofre Creek 100-year floodplain in the FEC-M, FEC-W and A7C-FEC-M Alternatives study area. The MCB Camp Pendleton percolation basins and Beach Club Road crossing are in the existing 100-year floodplain but would not be adversely affected by the FEC-M, FEC-W and A7C-FEC-M Alternatives. These Alternatives would adversely affect the existing access road under the I-5 on the south side of San Onofre Creek, which is in the existing floodplain, by resulting in increased flood depths.

Most of the groundwater that supplies the base infiltrates into the aquifer through alluvial deposits in the eastern part of the watershed. Since the Alternatives do not traverse the eastern part of the watershed and the Alternatives do not affect the percolation ponds adjacent to I-5, no adverse impacts to safe annual yield are expected to occur as a result of the Alternatives.

During a 100-year flood event, Beach Club Road and the access under I-5 from San Onofre Recreation Beach and Green Beach to the inland side of the Base would potentially be inundated. This would adversely impact access to the coastal side of Camp Pendleton.

San Onofre Creek Watershed

Long-term effects to groundwater are typically related to the amount and location of recharge of groundwater aquifers, and changes in water quality of surface waters, which recharge the groundwater. Storm water runoff, potentially degraded with pollutants, could potentially recharge alluvial aquifers. If the concentration of pollutants exceeds the filtration ability of the surface soils and/or unsaturated zone, groundwater quality could be adversely affected. Portions of these Alternatives would cross groundwater recharge areas within the lower portion of the San Onofre Basin about one quarter mile inland from the coast. The placement of impervious road surfaces in recharge areas would reduce the amount of precipitation and runoff that infiltrates into the aquifer. A reduction in recharge could affect groundwater levels in the aquifers, potentially affecting the yield of water supply wells.

Summary of Impacts for Waterways and Hydrologic Systems Related to Camp Pendleton

Adverse impacts would occur under the FEC-M, FEC-W and A7C-FEC-M Alternatives to San Mateo Creek watershed due to a decrease in permeable area for groundwater infiltration into the aquifer that supplies the Base. Adverse impacts to Beach Club Road and the access under I-5 to San Onofre Recreation Beach and Green Beach would occur during a 100-year flood event as a result of these Alternatives. The I-5 and CC Alternatives would not result in adverse impacts related to the San Mateo Creek watershed or Beach Club Road and the access under I-5 to the beach areas.

4.21.9.4 Mitigation for Waterways, Floodplains and Hydrologic Systems Related to Camp Pendleton

Measures to minimize impacts to floodplains, waterways and hydraulic systems are incorporated in the design of the Alternatives to the extent feasible. These measures include but are not limited to the redesign of culvert size and locations of piers. Other measures to control peak flow volume, flow rate and water quality are shown in detail in Tables 4.8-1, 4.8-2, 4.8-3, 4.8-6, 4.8-8, 4.8-9, 4.8-10, 4.8-14, 4.8-15, 4.8-19, 4.8-20, 4.8-22 and 4.8-23. These measures include extended detention basins (EDBs) to hold excessive flows before release into the main flows. EDBs and other water quality measures are described in detail in Section 4.9. Although the impacts to floodplains, waterways and hydraulic systems are mitigated with measures included in the design of the Alternatives, some floodplain encroachments will still be adverse after mitigation.

4.21.10 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR WATER QUALITY RELATED TO CAMP PENDLETON

4.21.10.1 Affected Environment for Water Quality Related to Camp Pendleton

The Alternatives cross two watersheds on Camp Pendleton. These watersheds are the San Mateo Creek and the San Onofre Creek watersheds. Section 4.22.9.1 provides a detailed description of these watersheds and their uses.

4.21.10.2 Methodology for Water Quality Related to Camp Pendleton

The methodology for determining impacts to water quality is described in detail in Section 4.9.2 (Methodology Related to Water Quality).

4.21.10.3 Impacts for Water Quality Related to Camp Pendleton

Impacts to water quality of the aquifers on the base would occur if the BMPs on the Alternatives failed and release pollutants to the watersheds that they traverse.

Construction Impacts for Water Quality Related to Camp Pendleton

Potential construction impacts caused by the Alternatives include increased sediment loads due to removal of existing ground cover and disturbance of soil during grading. Increased sediment loads from construction areas will alter the hydrologic response downstream in the San Mateo Creek watershed and, subsequently, the sediment processes in the local watershed. Construction of the Alternatives will impact the southern part of the San Onofre Creek watershed, but will not impact the more biologically sensitive northern parts of this watershed because the Alternatives do not traverse the northern parts of this watershed. If construction BMPs fail during a contaminant leak, it is expected that adverse impacts will occur to the San Mateo Watershed.

Long Term Impacts for Water Quality Related to Camp Pendleton

Untreated runoff from the Alternatives would be a direct source of concentrations of pollutants and contaminants. This may impact the water quality of San Juan Creek and San Mateo Creek and eventually the beaches at the San Mateo Creek mouth at the southern part of the San Onofre Creek watershed. Stormwater runoff from the Alternatives could potentially recharge alluvial aquifers; however, if the concentration of pollutants exceeds the filtration ability of the surface soils and unsaturated zone, groundwater quality would be adversely impacted.

Summary of Impacts for Water Quality Related to Camp Pendleton

Adverse impacts are anticipated to occur during construction and operation of the SOCTIIP build Alternatives if BMPs fail and contaminants are released into the San Mateo Creek watershed. Adverse impacts will occur to this watershed's aquifer if the concentration of pollutants in the recharge water exceeds the natural filtration ability of the surface soils and unsaturated zone. The Alternatives are not anticipated to impact water quality on the San Onofre Creek watershed

because they do not traverse the eastern areas of the watershed where groundwater recharge occurs.

4.21.10.4 Mitigation for Water Quality Related to Camp Pendleton

BMPs to control water pollution are incorporated in the design of the Alternatives to the extent feasible. Measures to minimize water quality impacts are included in detail in Section 4.9. These measures include EDBs to hold excessive flows before release into the main flows. It is not anticipated that any of the impacts to water quality will be adverse after mitigation.

4.21.11 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR WETLANDS AND WATERS OF THE UNITED STATES RELATED TO CAMP PENDLETON

This Section and Sections 4.21.12 and 4.21.13 assess impacts on biological resources on Camp Pendleton. However, biological resources on Camp Pendleton are part of broader communities that are present in the SOCTIIP study area and in some cases beyond it. Therefore, Sections 4.21.11, 4.21.12 and 4.21.13 summarize relevant information from Sections 4.10, 4.11 and 4.12 as they relate to Camp Pendleton. The biological resources study area on Camp Pendleton is shown on Figure 4.21-15. For discussions pertaining to regional context, habitat and movement, refer to Sections 4.10, 4.11 and 4.12 and Section 5.0 (Cumulative Impacts).

4.21.11.1 Affected Environment for Wetlands and Waters of the United States Related to Camp Pendleton

This discussion focuses on the SOCTIIP build Alternatives which traverse Camp Pendleton from the north adjacent to Talega PC in San Clemente. The Alternatives which traverse the Base on the west side of the Base along the I-5 do not impact any wetlands and waters of the United States and are not included in this discussion. The Alternatives which traverse the Base from the north are the:

- FEC-W Alternative.
- FEC-M Alternative.
- A7C-FEC-M Alternative.

The part of the SOCTIIP study area on Camp Pendleton is characterized by a variety of wetlands and riparian environments due to the presence of the Cristianitos and San Mateo Creeks, the San Onofre Creek and San Mateo Creek watersheds, coastal bluffs, seasonal rains, soil characteristics and natural terrain.

<u>Waters of the U.S. and Wetlands</u>

Appendix A of the NES is an assessment of potential project impacts to Waters of the United States and Riparian Ecosystems (R. Daniel Smith of the U.S. Army Corps of Engineers Research and Development Center, Waterways Experiment Station, 2003). That assessment provided a characterization of potential wetlands in the study area, including Camp Pendleton, as described

in detail in Section 4.10.2 (Affected Environment, Related to Wetlands and Waters of the United States). Those characterizations are summarized in Tables 4.10-13 and 4.10-14.

4.21.11.2 Methodology for Wetlands and Waters of the United States Related to Camp Pendleton

The methodology for assessing potential impacts of the SOCTIIP Alternatives on Wetlands and Waters of the United States is described in detail in Section 4.10.2 (Methodology Related to Wetlands and Waters of the United States).

4.21.11.3 Impacts for Wetlands and Waters of the United States Related to Camp Pendleton

As discussed earlier in Section 4.10, the results for each of the four criteria used to assess the potential impact of the nineteen corridor Alternatives on WoUS and riparian ecosystems are summarized in Section 4.10. Results include a reporting of values used to assess impacts as well as a ranking used to compare Alternatives. For each criterion, a normalized rank was assigned to the Alternative. The normalized rank is determined by dividing the number of miles impacted by a given Alternative with number of miles from the most impactive Alternative. Therefore, the closer the Alternative ranks to 0.0, the less impactive it is to WoUS or riparian ecosystems. A ranking close to 1.0 represents more impact to WoUS and riparian ecosystems. Tables 4.21-22 and 4.21-23 and Figure 4.21-16 show the overall normalized rank for each Alternative for all criteria and Tables 4.21-24 and 4.21-25 and Figure 4.21-17 show the overall normalized rank for each Alternative for Criteria 1 and 2 only. The I-5 widening received the lowest normalized overall rank (i.e. closest to 0.0 and least impactive). This is due to the existing level of disturbance along the corridor. Historic channelization of waters passing under the I-5 Corridor results in fewer miles of WoUS and fewer acres of riparian ecosystems impacted by the I-5 widening Alternative. Riparian ecosystems passing under the I-5 corridor would also receive lower scores for Criteria 3 and 4, due to the degree of disturbance that has already occurred there.

The highest overall rankings (i.e. closest to 1.0 and most impactive) were received by the CC-ALPV and CC Alternatives. These Alternatives traverse the greatest proportion of WoUS and riparian ecosystems. Additionally, the areas traversed by these Alternatives have been subjected to less historic disturbance than those Alternatives that make use of existing transportation corridors. For this reason, these Alternatives received the lowest scores on all four assessment criteria.

4.21.11.4 Mitigation for Wetlands and Waters of the United States Related to Camp Pendleton

All mitigation measures associated with wetland and waters are enumerated in Section 4.10. Those measures include the general mitigation measures and wetlands and water-related mitigation measures as they pertain to jurisdictional or biological habitat and specifically, mitigation measures WW-11, WW-14, WW-25, WW-32, WW-56, WW-57 and WW-59. These would be applicable to all Alternatives, including the Alternatives which traverse the Base, that affect wetlands and waters of the United States. Refer to Section 4.10 for the full text of these mitigation measures.

4.21.12 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR WILDLIFE, FISHERIES AND VEGETATION RELATED TO CAMP PENDLETON

4.21.12.1 Affected Environment for Wildlife, Fisheries and Vegetation Related to Camp Pendleton

The alignments which traverse Camp Pendleton are the FEC-M, FEC-W and A7C-FEC-M Alternatives. The other SOCTIIP Alternatives affect Camp Pendleton along I-5 up to the Cristianitos Road ramps. There are no wildlife, fisheries or vegetation except the landscaping and grasses installed by Caltrans in that area. Therefore, only these four alignments are discussed in this Section. Please refer to Figure 4.21-15 for the study area for Camp Pendleton for biological resources. One exception to this is the arroyo toad which is found in the affected environment for the I-5 Alternative. All tables listing biological resources with blank cells represent no affected environment, impact or mitigation.

Section 4.11 provides detail of these resources in Camp Pendleton. It should be recognized that Section 4.11 includes all resources in the SOCTIIP Study Area. Specifically the following is a listing of types of resources and species on Camp Pendleton with references to the corresponding figures in Section 4.11. Fish populations are present on the Base in San Mateo and San Onofre Creeks and their tributaries. Notwithstanding the presence of these populations, there are no commercial fishery operations affecting these fish populations in the study area. Threatened and endangered fish species are discussed in detail in Section 4.12.

Vegetation Communities (Figures 4.11-1i and 4.11-1j)

- Venturan-Diegan Coastal Sage Scrub
- Floodplain Sage Scrub
- Other Scrub
- Coastal Sage Scrub/Grassland Ecotone
- Chaparral/Sage Scrub Ecotone
- Chaparral Communities
- Native Grassland
- Annual Grassland
- Ruderal Grassland (4.6)
- Vernal Pools, Seeps, & Wet Meadows
- Marsh Communities
- Riparian Herb and Mule Fat Scrub
- Other Riparian Communities
- Coast Live Oak Woodland
- Blue Elderberry Woodland
- Lakes, Reservoirs, & Basins
- Watercourses
- Cliff and Rock Communities
- Agriculture

- Developed, Disturbed, Graded

Rare Plants (Figures 4.11-2d and 4.11-2e)

- Thread-Leaved Brodiaea

Birds (Figures 4.11-4h 4.11-4i)

- California Gnatcatcher
- Least Bell's Vireo
- San Diego Cactus Wren

Herptiles (Figures 4.11-3d and 4.11-3e)

- Arroyo Toad
- Western Spadefoot Toad

Mammals (Figure 4.11-5d)

- Pacific Pocket Mouse

Invertebrates (Figures 4.12-1a, 4.12-1b, 4.12-1c and 4.12-1d)

- San Diego Fairy Shrimp

Fish

- Arroyo Chub
- Southern Steelhead Trout
- Tidewater Goby

4.21.12.2 Methodology for Wildlife, Fisheries and Vegetation Related to Camp Pendleton

The methodology for the assessment of impacts related to wildlife, fisheries and vegetation is described in detail in Section 4.11.2 (Methodology Related to Wildlife, Fisheries and Vegetation).

4.21.12.3 Impacts for Wildlife, Fisheries and Vegetation Related to the Camp Pendleton

Direct project impacts were determined by overlaying the disturbance limits for each Alternative on the biological resources information in the GIS database within the Camp Pendleton boundaries. The disturbance limits include consideration of cut and fill, remedial grading, and stockpile locations associated with the corridors, bridge locations, and the widening of I-5 and the arterials. Direct impacts are those that involve the physical loss of plant communities, plant and wildlife species, and wildlife habitat due to site clearing, grubbing, grading and road construction, and include both permanent (long term) and temporary (short term) impacts.

Direct impacts may also include habitat degradation, fragmentation, or modification. For the corridor Alternatives, all construction staging activities are proposed within these disturbance limits.

Construction Impacts for Wildlife, Fisheries and Vegetation Related to Camp Pendleton

Construction impacts are the same as those described in detail in Section 4.11.

Long Term Impacts for Wildlife, Fisheries and Vegetation Related to Camp Pendleton

Table 4.21-26 shows the direct impacts to wildlife, fisheries and vegetation on Camp Pendleton. As discussed earlier in this Section, in addition to the impacts of these Alternatives, an arroyo toad population and 0.2 ha (0.04 ac) of Venturan-Diegan coastal sage scrub would be affected by the I-5 Alternative on Camp Pendleton, as shown in Table 4.21-26.

Indirect impacts associated with noise, wildlife movement, habitat fragmentation and biodiversity are discussed in detail in Section 4.11. There are potential issues regarding habitat on the Base and encroachment from the displacement of species on property abutting the Base. Encroachment is discussed in detail in Section 4.21.2.

Regional Wildlife Movement Studies in the SOCTIIP Study Area

Regional wildlife movement occurs through open space areas within and adjacent to MCB Camp Pendleton. Indirect impacts relating to wildlife movement, habitat fragmentation, and biodiversity have been identified. The base is considered part of the natural wildlife corridors that connect open space areas of the Cleveland National Forest, Casper's Wilderness Park, O'Neill Regional Park, RMV, and Thomas F. Riley Wilderness Park. All these areas have generally not been constrained or required to create artificial wildlife corridors. Current and future development planned for many of the areas between the listed open space areas, could result in any remaining areas becoming wildlife corridors and artificial corridors being necessary to supplement the connectivity that is lost.

Several watersheds and drainages, maintained by Camp Pendleton, provide food and cover for wildlife species and facilitate wildlife movement throughout the base and to adjacent open space areas. In relation to the SOCTIIP study area, portions of the San Mateo River, San Mateo Creek, and San Onofre Creek offer the best direct connectivity for wildlife. However, wildlife movement has been restricted between I-5 and the beaches and coastal bluffs of Camp Pendleton. Potential north-south wildlife movement occurs through the inland mountains, along the coastal belt located east of I-5, and the foothills that are not constrained by development and other artificial barriers.

Native vegetation communities supporting wildlife have become fragmented regionally in the foothills and valleys located between Camp Pendleton and the Cleveland National Forest. The SOCTIIP Study area is located between these two open space areas. This trend in regional development and habitat isolation is expected to continue unless regional planning efforts and protected lands are established. The NCCP is expected to set aside acres of open space lands as

mitigation for anticipated future development such as SOCTIIP. These lands acquired or protected as a result of the NCCP and existing lands from Camp Pendleton are anticipated to provide necessary landscape linkages and assure protection of natural resources.

Military development has contributed to some constraint of existing wildlife movement. Additionally, nonmilitary development such as railroad lines, I-5, and electric transmission lines have further constrained wildlife movement in the area.

4.21.12.4 Mitigation for Wildlife, Fisheries and Vegetation Related to Camp Pendleton

The mitigation measures for impacts to wildlife and vegetation on Camp Pendleton are the same as provided in Section 4.11.4 (Mitigation Measures Related to Wildlife, Fisheries and Vegetation). All the mitigation measures identified in Section 4.11 will apply to the build Alternatives which traverse the Base.

4.21.13 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR THREATENED AND ENDANGERED SPECIES RELATED TO CAMP PENDLETON

4.21.13.1 Affected Environment for Threatened and Endangered Species Related to Camp Pendleton

The alignments which traverse Camp Pendleton are the FEC-M, FEC-W and A7C-FEC-M Alternatives. The other SOCTIIP Alternatives affect Camp Pendleton within I-5 up to the Cristianitos Road ramps. Therefore, only the four alignments are discussed in this section. Refer to Figure 4.21-15 for the study area for Camp Pendleton for biological resources. One exception to this is the arroyo toad population which is found in the affected environment for the I-5 Alternative.

For a complete discussion on the definitions and implications of threatened and endangered species pursuant to both the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), refer to Section 4.12.

A list of species observed or known to be in the study area on Camp Pendleton was provided in Section 4.21.12.1. Of the species listed, the thread-leaved brodiaea, arroyo toad, California gnatcatcher, least Bell's vireo, southern steelhead, tidewater goby and San Diego fairy shrimp are listed as threatened and/or endangered. The Pacific pocket mouse is also known to occur in the study area, but the Alternatives have been designed to avoid impacts to these observed populations.

4.21.13.2 Methodology for Threatened and Endangered Species Related to Camp Pendleton

The methodology related to threatened and endangered species, is provided in Section 4.12.2 (Methodology Related to Threatened and Endangered Species).

4.21.13.3 Impacts for Threatened and Endangered Species Related to Camp Pendleton

Refer to Section 4.12.3 for a detailed discussion of potential construction and long term impacts related to threatened and endangered species on Camp Pendleton. Thread-leaved brodiaea, arroyo toad, California gnatcatcher and least Bell's vireo are listed as threatened and/or endangered and occur on Camp Pendleton in the study area (see Table 4.21-26). Impacts to these species would be adverse, and would include three of 11 populations of thread-leaved brodiaea in the SOSB Subunits 1 and 2, one of 77 known occurrences of arroyo toad, and nine of 27 known occurrences of California gnatcatcher in the same area.

Although the project would impact three of the 11 populations of thread-leaved brodiaea, these impacts would affect only 23 individual plants of a total of 1,076 plants (see Figure 4.11-2d). Therefore, the impact to this species in SOSB Subunits 1 and 2 would be to about two percent of the total number of plants.

In addition to the arroyo toad occurrence that would be directly affected (see Figure 4.11-3e), other occurrences are located immediately adjacent to the study area in the northwest corner of San Diego County (see Figure 4.11-3d). These occurrences are in an area that is likely to support a population (with other occurrences recorded close by). Therefore, it is possible that impacts could occur to that population, and could result from the potential isolation of that population from the larger population in San Mateo Creek. Mitigation measures discussed in detail in Section 4.12.4 would minimize and/or avoid the impacts to this species. However, the impact of isolating that population from San Mateo Creek would be locally significant.

Impacts to the California gnatcatcher would represent the loss of approximately 77 hectares (190 acres) of coastal sage scrub habitat in SOSB Subunits 1 and 2, which would contribute to population fragmentation in that area. It would also represent direct impacts to one-third of the area's known use areas. Suitable habitat exists on either side of the corridor, and the gnatcatcher would be capable of crossing the corridor for dispersal, so the remaining populations on either side of the corridor would not be completely isolated from one another. Regardless, local impacts to the California gnatcatcher population would be substantial.

No direct impacts to Pacific pocket mouse or least Bell's vireo would occur. The grading limits of the FEC-W and FEC-M Alternatives would narrowly avoid the known population of Pacific pocket mouse (which ranges from immediately adjacent to the grading limits to approximately 305 meters (1,000 feet) from the grading limits). Mitigation measures discussed in detail in Section 4.12.4 would ensure that impacts to this species are minimized and avoided. The population of Pacific pocket mouse that is located adjacent to the project is known as the San Mateo North population. The next nearest population is the San Mateo South population, located approximately 2.1 kilometers (1.3 miles) south of the San Mateo North population. Several barriers to movement between these populations currently exist including Cristianitos Road, agricultural fields, military operations and San Mateo Creek. The corridor would present an additional barrier to movement, although demographic and/or genetic interchange between the populations is not thought to occur on a regular basis because of the distance between these populations and existing land uses in this area.

Indirect impacts could occur to several of the 10 known least Bell's vireo occurrences in the Camp Pendleton area, as the grading limits are in close proximity (within 152 meters (500 feet) of five known occurrences. However, mitigation measures discussed in detail in Section 4.12.4 would reduce impacts to this species, particularly during the breeding season.

4.21.13.4 Mitigation for Threatened and Endangered Species Related to Camp Pendleton

The mitigation measures for threatened and endangered species on Camp Pendleton are the same in Section 4.12.4 (Mitigation Measures Related to Threatened and Endangered Species). The mitigation measures in Section 4.11 will also apply to Alternatives which traverse the Base.

4.21.14 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR WILD AND SCENIC RIVERS RELATED TO CAMP PENDLETON

4.21.14.1 Affected Environment for Wild and Scenic Rivers Related to Camp Pendleton

As discussed in Section 4.13 (Affected Environment, Impacts and Mitigation Related to Wild and Scenic Rivers), there are no wild, scenic or recreational rivers in the SOCTIIP study area, including the part of Camp Pendleton in the study area.

4.21.14.2 Methodology for Wild and Scenic Rivers Related to Camp Pendleton

The Wild and Scenic Rivers Act and the National Inventory of Wild and Scenic Rivers (http://www.nps.gov/rivers/) were reviewed to determine whether any designated Wild and Scenic Rivers are located in the SOCTIIP study area.

4.21.14.3 Impacts for Wild and Scenic Rivers Related to Camp Pendleton

The SOCTIIP study area does not contain wild, scenic or recreational rivers. Therefore, the construction and operation of any of the SOCTIIP build Alternatives and the No Action Alternatives will not result in adverse impacts on wild and scenic rivers.

4.21.14.4 Mitigation for Wild and Scenic Rivers Related to Camp Pendleton

No mitigation measures related to wild and scenic rivers are needed because there are no wild or scenic rivers in the SOCTIIP study area, including the part of Camp Pendleton in the study area.

4.21.15 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR COASTAL BARRIERS RELATED TO CAMP PENDLETON

4.21.15.1 Affected Environment for Coastal Barriers Related to Camp Pendleton

As described in Section 4.14 (Affected Environment, Impacts and Mitigation Measures Related to Coastal Barriers), there are no coastal barriers in the SOCTIIP study area, including the part of Camp Pendleton in the study area.

4.21.15.2 Methodology for Coastal Barriers Related to Camp Pendleton

The Coastal Barrier Resource Act (CBRA P.L. 97-348, 16 U.S.C. Section 3501, et seq.) and the Coastal Barrier Improvement Act of 1990 (CBIA, P.L. 101-591; 104 Stat. 2931) were reviewed to determine whether any coastal barriers are located in the SOCTIIP study area. The CBRA and CBIA do not list any Pacific coastal barrier systems under their protection in the SOCTIIP study area, including the part of Camp Pendleton in the study area.

4.21.15.3 Impacts for Coastal Barriers Related to Camp Pendleton

The SOCTIIP study area does not contain coastal barriers. Therefore, the construction and operation of any of the SOCTIIP build Alternatives and the No Action Alternatives will not result in adverse impacts on coastal barriers.

4.21.15.4 Mitigation for Coastal Barriers Related to Camp Pendleton

No mitigation measures related to coastal barriers are needed because there are no coastal barriers in the SOCTIIP study area, including the part of Camp Pendleton in the study area.

4.21.16 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR THE COASTAL ZONE RELATED TO CAMP PENDLETON

4.21.16.1 Affected Environment for Coastal Zone Related to Camp Pendleton

As shown earlier in Section 4.15 (Affected Environment, Impacts and Mitigation Measures Related to Coastal Zone) Figure 4.15-1, a small part of Camp Pendleton is in the Coastal Zone, which includes San Mateo Creek and the Trestles Subunit of San Onofre State Beach in the SOCTIIP study area. Development in the Coastal Zone requires application for a Coastal Development Permit (CDP). The California Coastal Commission (CCC) review would be pursuant to the CDP and the federal consistency processes described in Section 4.15.

Camp Pendleton implements coastal and environmental protection procedures that are generally consistent with the California Coastal Act (CCA). However, the Base is a federal facility and is exempt from providing coastal access as defined under the CCA. Section 4.3.3 (page 4-37) of the Final INRMP discusses the following coastal protection procedures at Camp Pendleton:

> "Base operations, activities, projects, and programs that affect the land, water, or natural resources of any coastal zone must be consistent, to the maximum extent practicable, with the policies of California's coastal zone management program. The Base supports the development and implementation of state coastal nonpoint pollution control programs on Marine Corps lands by identifying nonpoint sources, specifying corrective measures, and coordinating nonpoint source compliance efforts with state programs (HQMC 1998). Camp Pendleton has identified areas of sensitive natural resources of the coastal zone, minimized the loss or degradation of coastal wetlands, enhanced the natural value of wetlands, and protected water quality."

Section 4.3.3 "Estuary/Coastal Zone Management" of the Final INRMP identifies the following objective:

> "Protect and rehabilitate the natural and beneficial functions of the Base's estuaries and coastal zones. Continue to implement the Estuarine/Beach Ecosystem Conservation Plan, as specified in the Riparian BO issued by the USFWS (1995a)." (page 4-38, Final INRMP, October 2001)

4.21.16.2 Methodology for Coastal Zone Related to Camp Pendleton

Camp Pendleton's Final INRMP was reviewed and coastal program and policies were analyzed to determine if any of the SOCTIIP build Alternatives would conflict with any DOD program or policy as stated in the INRMP regarding the coastal area at Camp Pendleton and compliance with the federal Coastal Zone Management Act (CZMA).

4.21.16.3 Impacts for Coastal Zone Related to Camp Pendleton

The FEC-W, FEC-M and A7C-FEC-M Alternatives would require a permit from the CCC for construction in the Coastal Zone. The permit would also require a consistency finding with the Federal Coastal Zone Management Act. These processes would involve coordination with the landowner, in the DOD with regard to issuing the permit and allowing construction on DOD property. The permit is a requirement and therefore is not considered an adverse impact. However, adverse impacts could occur on resources on MCB Camp Pendleton related to rare and threatened species, water quality and wetlands. Refer to Sections 4.21.11, 4.21.12 and 4.21.13 for discussion of potential impacts on those resources on MCB Camp Pendleton.

For the other Alternatives (CC and I-5) which affect I-5, a small corner of Camp Pendleton is affected which lies entirely in the I-5 ROW easement to Caltrans adjacent to the SOSB lease area. Construction in this area in the coastal zone will also require a coastal development permit. The permit is a requirement and, therefore, is not considered an adverse impact. Impacts and mitigation measures for biological resources in this area are discussed in Sections 4.21.11, 4.21.12 and 4.21.13.

4.21.16.4 Mitigation for Coastal Zone Related to Camp Pendleton

Refer to Sections 4.21.11, 4.21.12 and 4.21.13 for discussion of mitigation for potential impacts to rare and threatened species, water quality and wetlands sections for resources on MCB Camp Pendleton.

4.21.17 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR ARCHAEOLOGICAL AND HISTORIC RESOURCES RELATED TO CAMP PENDLETON

4.21.17.1 Affected Environment for Archaeological and Historic Resources Related to Camp Pendleton

There are fifteen archaeological sites within the 0.4 to 0.8 km (0.25 to 0.5 mi) wide study area along the alignments of the build Alternatives on MCB Camp Pendleton. One site listed on the National Register of Historic Places (NRHP), the San Mateo Archaeological National Register District, is comprised of seven separate sites, CA- CA-ORA-22, CA-SDI-4282, CA-SDI-4535, CA-SDI-8435, CA-SDI-11703, CA-SDI-11929 and CA-SDI-13071. Four of the remaining sites have been evaluated for NRHP eligibility; three were found potentially eligible for nomination to the NRHP and one was found not eligible. The NRHP status of four of the sites is either not determined or not known. One of the sites is potentially destroyed and five have been described as partially destroyed or mechanically disturbed.

These archaeological sites include places used for habitation, procurement and processing as represented by formal tool types and waste materials. These range in size and complexity from isolated surface artifacts to historically described village sites with well developed midden deposits, and associated human burials.

There are no historic sites within the study area of the alignments in MCB Camp Pendleton.

4.21.17.2 Methodology for Archaeological and Historic Resources Related to Camp Pendleton

The methodology for archaeological and historic resources is described in detail in Section 4.16.2 (Methodology Related to Archaeological and Historic Resources).

4.21.17.3 Impacts for Archaeological and Historic Resources Related to Camp Pendleton

Construction Impacts for Archaeological and Historic Resources Related to Camp Pendleton

Impacts on archaeological and historic resources during construction are related to the damage or destruction of these resources that could occur during demolition, earthmoving and other construction activities. These impacts to archaeological and historic resources would be adverse. As stated previously, there are no historic resources in the study area on MCB Camp Pendleton.

Long Term Impacts for Archaeological and Historic Resources Related to Camp Pendleton

The long term impacts related to archaeological and historic resources are generally indirect in nature. In the case of archeological resources, public access could potentially be made available to previously inaccessible resources, thereby increasing human presence in those areas. Increased human presence creates opportunities for increased disturbance of archeological resources including the potential for scavenging and/or damage by amateur collectors and construction personnel.

As stated previously, there are no historic resources in the study area on MCB Camp Pendleton.

Summary of Impacts for Archaeological and Historic Resources Related to Camp Pendleton

Of the fifteen archaeological sites in the study area in MCB Camp Pendleton, eleven would be within the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives and would be adversely impacted by these Alternatives. Table 4.21-27 lists the sites that are in the disturbance limits of these Alternatives and includes the archaeological resource, a description of the resource, the condition and NRHP eligibility. There are no documented archeological sites in the disturbance limits for the CC and I-5 Alternatives on Camp Pendleton. Therefore, these Alternatives will not result in adverse impacts to archeological sites on Camp Pendleton.

There would be no impacts related to historic resources on MCB Camp Pendleton, as there are no historic resources in the study area on MCB Camp Pendleton.

4.21.17.4 Mitigation for Archaeological Resources Related to Camp Pendleton

Measure AR-1. Prior to the start of construction activity, a qualified archaeologist shall be retained by the TCA to perform subsurface test level investigation and surface collection on sites potentially eligible for NRHP. The test level report evaluating the site shall include discussion of significance (scientific data potential), integrity (location, physical characteristics, and condition), mitigation recommendations, and cost estimates. Final mitigation shall be carried out based on the report recommendations, input by FHWA and SHPO, and a determination as to the site's disposition by the TCA with concurrence of the FHWA. Possible recommendations made by a qualified archaeologist include, but are not limited to, preservation, data recovery, or no mitigation necessary.

Measure AR-2. In conjunction with the final design, the TCA shall retain a qualified archaeologist to conduct data recovery of the archaeological resources in the construction area. A final report of the data recovery operation shall be submitted to the TCA prior to any grading in the archaeological site areas.

Measure AR-3. Prior to the start of construction activity, the TCA shall retain a qualified archaeologist. The archaeologist shall establish procedures (monitoring plan) for archaeological resource surveillance, and procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the cultural resources as appropriate. The archaeologist shall also be present at the pregrading conference to explain the established procedures based on a pre-approved monitoring plan. If additional or unexpected archaeological resources are discovered, a qualified archaeologist shall determine appropriate actions, in cooperation with the TCA, for testing and/or data recovery. The archaeologist shall submit a follow-up report to the TCA that shall include the period of inspection, an analysis of any artifacts found, the results of any testing or data recovery, and the present repository of the artifacts.

4.21.17.5 Mitigation for Historic Resources Related to Camp Pendleton

There are no mitigation measures applicable to historic resources on MCB Camp Pendleton, as there are no historic resources within the disturbance limits of the SOCTIIP alignments on MCB Camp Pendleton.

4.21.18 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR HAZARDOUS MATERIALS AND WASTES RELATED TO CAMP PENDLETON

4.21.18.1 Affected Environment for Hazardous Materials and Wastes Related to Camp Pendleton

The study area for hazardous materials and hazardous waste sites includes one specific military site (Camp Pendleton), as defined by the regulatory records searches. The detailed results from these records searches are provided in the Hazardous Materials and Hazardous Wastes Technical Report. The area is the MCB Camp Pendleton, as listed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database as a federal facility National Priorities List site and shown in Table 4.21-28. CERCLIS is EPA's primary database for information on reported releases of hazardous substances.

4.21.18.2 Methodology for Hazardous Materials and Wastes Related to Camp Pendleton

The methodololgy for assessing impacts related to hazardous materials and wastes is described in detail in Section 4.17.2 (Methodology Related to Hazardous Materials and Wastes).

4.21.18.3 Impacts for Hazardous Materials and Wastes Related to Camp Pendleton

MCB Camp Pendleton is a NPL site, which indicates the presence of major environmental concerns and documented releases that pose an immediate threat to public health. Sources of contamination at the facility include LUSTs, spills of hazardous substances and other documented releases of hazardous materials to the environment. Cleanup of the releases is performed under the Installation Restoration (IR) program, administered by the Southwest Division Naval Facilities Engineering Command (SWDIV). Information developed for the 1997 HMSA indicated there were numerous locations throughout Camp Pendleton that were undergoing various stages of environmental investigation and remediation. Information on MCB Camp Pendleton was reviewed at the document repository in Oceanside, California. Summary information on the Camp Pendleton NPL site is presented in the Hazardous Materials and Wastes Technical Report.

Based on information in the Master Plan for Camp Pendleton (1992) and the HMSA, none of the alignments for the SOCTIIP build Alternatives cross any of the identified IR sites at Camp Pendleton.

Review of documentation for the Installation Restoration Program (IRP) at Camp Pendleton indicated that the nearest sites that were investigated for the IRP were east of Cristianitos Creek. These sites included two refuse burning areas, a grease disposal pit, a Combat Engineers

Maintenance Facility, and a pesticide and POL (petroleum oil and lubricant) handling area. Investigations at these sites as part of the IRP did not indicate the need for further action for ecological investigations at any of the sites. Some further assessments were recommended for further investigation of detected concentrations of metals and arsenic at two of the sites, but the concentrations were not of immediate concern. Because none of the corridor alignments traverse the IRP sites, the presence of these sites east of some of the corridor alignments does not appear to be of immediate concern.

There have been no new operating tanks installed in the section of Camp Pendleton within the SOCTIIP study area since 1997. In addition, many underground and aboveground storage tanks have been removed since 1997. Of approximately 630 tanks at Camp Pendleton in 1997, about 48 underground storage tanks and 143 aboveground storage tanks currently remain.

According to information provided by the regulatory database search conducted for the 1997 HMSA, spill incidents reportedly occurred in the area of the westernmost corner of the base, near the alignments of the FEC-W, FEC-M and A7C-FEC-M Alternatives. These incidents are identified as the Basilone Road spill and Cristianitos Road spill. The incident at Basilone Road occurred on June 6, 1988, and involved the release of approximately 55 gallons of oil at the intersection of Basilone Road and I-5. No further information was provided. The incident at Cristianitos Road involved a release on April 15, 1994, of a dry powder material (ALB-12 powder) to the soil. ALB-12 is a cleaner manufactured by Certified Laboratory Products of Ontario, Canada. Review of the Material Safety Data Sheet (MSDS) for this substance indicates it is a mixture of phosphoric acid, ammonium bifluoride and octylphenoxypolyethoxyethanol. The hazard rating for this substance indicates a high health hazard (due to corrosivity) and slight flammability hazard. The cleanup of the spill likely included neutralization of the material, and the listing does not indicate any follow-up action after the original cleanup. Both areas were reviewed during the reconnaissance of the study area and no evidence of a spill or release was encountered.

Based on the review of maps provided by MCB Camp Pendleton and the comparison of those maps to the database search, it appears that with the exception of the Camp Pendleton gas station (Map ID No. 1A) which is within the disturbance limits for the FEC-W, FEC-M and A7C-FEC-M Alternatives and the San Mateo Park Campground (Map ID No. 4), which is within the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives, the other specific IR facilities noted on the Base are at least 0.4 kilometer (0.25 mile) from the alignments of the SOCTIIP Alternatives, which is a sufficient distance that these sites would not affect or be affected by construction of the SOCTIIP Alternatives. Refer to Table 4.21-29 for a summary of impacts to the SOCTIIP Alternatives associated with hazardous materials and wastes.

Also noted during the 1997 reconnaissance of the Marine Corps Base was the presence of several small shooting ranges. However, none are within the disturbance limits of the SOCTIIP build Alternatives. Therefore, they are not considered to affect or be affected by the SOCTIIP Alternatives.

Beside the decommissioned El Toro Marine Corps Air Station, the other aviation area is MCB Camp Pendleton at the southern part of the SOCTIIP study area where there are exclusively

military aviation operations. These aviation operations are ongoing and involve both fixed wing and helicopter operations. Federal Aviation Administration (FAA) designated Restricted Airspace overlies practically all of Camp Pendleton. It has been established to protect non-participating civil aircraft from hazards associated with live-fire ground and aviation training activities occurring on the base. No impacts are associated with military aviation operations.

Construction Impacts for Hazardous Materials and Wastes Related to Camp Pendleton

Since construction of the SOCTIIP project will not entail the usage of materials other than those used on similar projects, the construction of the SOCTIIP build Alternatives does not appear to pose any concerns regarding fire, explosion or accidental releases other than those characteristic of typical construction projects throughout southern California. Also, none of the SOCTIIP build Alternative alignments cross sections of Camp Pendleton that are areas of known hazardous materials. Therefore, the potential for impacts is low.

Long Term Impacts for Hazardous Materials and Wastes Related to Camp Pendleton

Generally, operation of the SOCTIIP build Alternatives is not expected to generate long term hazardous material related impacts to Camp Pendleton. The potential for risks and hazards associated with the SOCTIIP Alternatives in the vicinity of the aviation activities at MCB Camp Pendleton are discussed in detail in the Military Impacts Technical Report. Based on analysis in that technical report, the aviation activities at Camp Pendleton would not adversely affect or be affected by the SOCTIIP Alternatives.

Summary of Impacts for Hazardous Materials and Wastes Related to Camp Pendleton

The FEC-W, FEC-M and A7C-FEC-M Alternatives traverse the northwest edge of Camp Pendleton but do not cross any areas on the Base known for hazardous materials. The I-5 and CC Alternatives, in and adjacent to the existing I-5 right-of-way, to do not cross any areas on the Base known for hazardous materials. Therefore no substantial hazardous materials concerns were identified for these Alternatives. Table 4.21-29 lists the military sites and the potential impacts to the Alternatives.

4.21.18.4 Mitigation for Hazardous Materials and Wastes Related to Camp Pendleton

The following mitigation measures were developed to avoid or minimize as much as possible the impacts to Camp Pendleton of the SOCTIIP build Alternatives related to hazardous materials.

Measure HM-1: Testing For Contaminated Groundwater. Groundwater testing for the presence of pesticides, nitrates, metals and petroleum hydrocarbons will be required by the Regional Water Quality Control Board (RWQCB) prior to construction in all areas where excavation may extend into groundwater based on final design criteria. All wastewater generated during construction will meet all applicable requirements of the RWQCB prior to disposal.

Measure HM-2: Aerially Deposited Lead. In areas immediately adjacent to existing roads proposed for construciton (I-5, arterials), soil samples will be collected and analyzed for lead

concentrations during final design, (ADL) consistent with "Lead Testing Recommendations for Districts with Aerially Deposited Lead Variance" (Caltrans 2001), "Invoking the Aerially Deposited Lead Variance" (Caltrans, no date), DTSC "Variance 00-H-VAR-07," and Standard Special Provision SSP 19-900, 55-740. If lead-affected soil is found, the results/conclusions will be included in the Site Investigation Report, the Standard Special Provisions (SSP) and the Material Information Handout (MIH). The SSP and MIH will be incorporated in design specifications and will include measures to safeguard public health before and during construction. Depending on the concentrations and volumes encountered, excavation and disposal of lead-impacted soil may be required. If such excavation is indicated, procedures for handling and disposal will be included in the design specifications. Soil contaminated with ADL will be removed and disposed of, in concurrence with the variance issued to the California Department of Transportation (Caltrans) by the California Department of Toxic Substances Control (DTSC). This material may be reused for embankment fill, retaining wall backfill and/or capped with an appropriate amount of clean fill material. Specifically, DTSC granted Caltrans a variance in 2000 to allow for the use of some lead contaminated soils for fill and backfill during construction of freeway improvements, provided that Caltrans' handling and use of those soils are consistent with the conditions, limitation and requirements described in that variance. A copy of the variance is available for review at the Caltrans District 12 office. This variance is valid through September 22, 2005. It is anticipated that all of the lead contaminated soil in the SOCTIIP study area affected by the Alternatives would be used during the construction of the proposed project. Although there is not expected to be the need to remove and dispose of any lead contaminated soil off site during construction, any excess contaminated soil would be disposed of consistent with all applicable federal, state and local regulations.

Measure HM-7: Construction Related Hazardous Materials. All construction activities will be required to comply with existing federal, state and local regulations regarding the handling, use, storage and disposal of hazardous materials, including specific regulations on response in the event of accidental release.

Measure HM-9: Alignment Specific Database Review. During final design for the selected Alternative, an updated regulatory database report will be obtained and regulatory records for identified sites of concern, such as leaking underground storage tank locations, will be reviewed. The intent of obtaining and reviewing this updated information will be to evaluate changes in, or the progress of, ongoing monitoring and remediation activities at those properties within or immediately adjacent to the disturbance limits for the selected Alternative. The results of this additional database and records review will be used in developing the final construction plans and schedules.

Depending on the location, nature, concentrations and potential risk of chemically affected soil identified prior to and/or grading activities, remedial measures, consistent with the measures provided here, may be necessary to minimize future impacts to the environment and the public associated with changes in the updated status of identified sites of concern.

Measure HM-10: Underground Storage Tanks. The removal of underground storage tanks affected by the SOCTIIP Alternatives will be coordinated by the facility tenant or property owner (which could be the current owner, the TCA, other implementing agency, Caltrans or the

applicable local jurisdiction), and regulatory closure would be directed and approved by the applicable local oversight regulatory agency. These local oversight regulatory agencies may include the Orange County Health Care Agency, San Diego Hazardous Materials Management District and/or the San Diego and/or Santa Ana Regional Water Quality Control Boards (RWQCBs). Appropriate mitigation will include monitoring the progress of UST closure activities through periodically updating the regulatory database review. This measure will be conducted for the selected SOCTIIP build Alternative.

Measure HM-13: Camp Pendleton. If the selected Alternative crosses Camp Pendleton, the Department of the Navy (DON) will be consulted and a review of current United States Environmental Protection Agency (EPA) files will be conducted during final design to evaluate whether National Priorities List (NPL) records indicate that hazardous materials releases have occurred beneath the northwestern part of the Base, which may impact the SOCTIIP build Alternatives. Current regulatory records pertaining to the integrity of the USTs and associated piping at the Base gas station will be reviewed. In the event that the regulatory files lack records of monitoring or UST integrity test results, subsurface sampling activities will be conducted, including confirmation soil sampling conducted within the disturbance limits of the build Alternative. Evaluation of potentially impacted or environmentally impaired properties will be performed prior to acquisition in order to determine the degree of environmental risk and liability for both the buyer and seller.

Measure HM-14: Camp Pendleton. In the event that an alignment Alternative that traverses a part of Camp Pendleton is ultimately selected for construction, the right-of-way easement granted by the DON to TCA or other implementing agency (for a non-corridor agency) shall contain the following provisions: 1) procedures for control and manifesting of hazardous waste generated by construction or maintenance activities; 2) Assignment of responsibility for hazardous waste management, spill accountability, and hazardous waste disposal (including manifesting); 3) The EPA identification (ID) number to be used to manifest hazardous wastes; 4) Responsibility for acquisition of any required health permits; 5) Procedures for management of HW stored on Camp Pendleton property; 6) Assignment of responsibility for any Notices of Violation or other regulatory enforcement actions occurring within the Alternative right-of-way during construction or operation of the SOCTIIP project.

NES Measure 12: Construction Storage. During all construction activities, the contractor shall ensure that construction equipment or vehicles shall not be stored within areas defined as Environmentally Sensitive Areas (ESAs), including areas within the jurisdiction of the ACOE and/or CDFG. There shall be no fueling, lubrication, storage, or maintenance of construction equipment within 46 m (150 ft) of CDFG or ACOE jurisdictional areas.

NES Measure 13: Construction Disposal. During all construction activities, the contractor shall ensure that no waste material shall be discharged to any CDFG or ACOE jurisdictional areas. Spoil sites shall not be located within any CDFG or ACOE jurisdictional areas, or in areas where it could be washed into any surface water body.

In the event of an accidental release of hazardous materials or wastes associated with an accident on the transportation facilities under any of the SOCTIIP build Alternatives, including the

corridors, arterials and I-5, the reporting and cleanup of the spill is strictly regulated by a wide variety of federal, state and local agencies. Because the transport of hazardous materials and wastes and the remediation of any accidental spills are already addressed by existing local, state and federal regulations, no specific mitigation measures are required for the SOCTIIP Alternatives.

4.21.19 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR VISUAL RESOURCES RELATED TO CAMP PENDLETON

4.21.19.1 Affected Environment for Visual Resources Related to Camp Pendleton

The study area for visual resources is within the viewsheds of the SOCTIIP alignments. A viewshed is defined as the area within 2,000 m (1.25 mi) of the SOCTIIP alignments that can be seen from the alignments and from which the alignments can be seen. This viewshed distance was selected following review of the build alignments overlaid on aerial photography to identify developed areas and by field visits of the build alignments. Based on the information from these sources, it was determined that most views of the alignments from developed areas were within a range of 2,000 m (1.25 mi) from the alignments. At greater distances, intervening topography, buildings or trees and shrubs generally blocked views of the alignments from developed areas.

Land Uses on MCB Camp Pendleton

SOSB is a state park on land leased from MCB Camp Pendleton in the northwestern corner of San Diego County as shown earlier on Figure 4.18-4. SOSB offers outdoor recreation opportunities including camping, hiking and surfing. SOSB is operated and managed by the California Department of Parks and Recreation and is comprised of four subunits: Cristianitos, Trestles, Surfer Beach and Bluffs.

The west part of the MCB Camp Pendleton Base is in the south part of the SOCTIIP study area. The uses on the Base in the study area include the SOSB lease area, agricultural fields which are leased from the Base, four residential housing areas for Base personnel, three cantonment areas, three ground training areas and one amphibious training area, as shown previously on Figure 4.18-4. The San Mateo Point housing area is west of and immediately adjacent to I-5 and the San Onofre Housing Areas 1 and 2 and a base mobile home park are north of I-5 and east of the leased agricultural fields.

Visual and Aesthetic Polices Related to MCB Camp Pendleton

San Onofre State Beach Revised General Plan

The San Onofre State Beach General Plan includes the following policy regarding aesthetics:

> "The scenic resources of San Onofre State Beach are of great importance. They include outstanding ocean vistas, geologic features, and striking vegetation. Unfortunately, scenic detractions such as power lines, cyclone fences and litter are found in the unit.

Policy: The special scenic resources of the unit shall be protected from all degrading and undesirable intrusions. Structures in the unit shall be sensitively designed and located so they blend with their surroundings. Powerlines and other detracting installations shall be kept as unobtrusive as possible. Signs shall be kept to a minimum, strategically located, and in the best of taste."

4.21.19.2 Methodology for Visual Resources Related to Camp Pendleton

The methodology for assessing visual impacts for the SOCTIIP is described in detail in Section 4.18.2 (Methodology Related to Visual Resources).

4.21.19.3 Impacts for Visual Resources Related to Camp Pendleton

Long Term Impacts for Visual Resources Related to Camp Pendleton

Immediately following construction of the project the cut, fill and graded areas will highly contrast with adjacent areas because they will be devoid of vegetation. This impact, which is common to all the build Alternatives, would be substantially adverse to sensitive viewers and adverse but less than substantial to non-sensitive viewers. However, these areas will be seeded or planted consistent with species in the adjacent areas. Once this vegetation becomes established, the contrast between the existing and with-project conditions will be considerably reduced. The analysis of project impacts in this Section are described for mitigated conditions five years following completion of project construction.

AUs were identified for the build Alternatives and the visual impacts of the Alternatives were evaluated for each AU. Because of the linear nature of the build Alternatives, the variety of topography that is crossed including developed and undeveloped areas, and presence of intervening features that would block views of the alignments, the entirety of an Alternative can not be seen at one time from one location. Therefore, rather than treating the visual impacts of an Alternative as a single unit, the corridor Alternatives were divided into AUs. An AU is the segment of a project alignment that is within the viewshed of one or more sensitive viewer groups, if sensitive viewers can see the segment. If no sensitive viewers can see the segment, then the AU was identified based on the similarity of visual resources along the alignment. The AUs in MCB Camp Pendleton are AU33, AU13 and AU40.

Assessment Unit 33

Assessment Unit 33 Location and Project Elements

The project alignment in AU33 is shown on Figure 4.18-53. The alignment in the south part of AU33 is shown on Figure 5.34-2. Alternatives that occur in AU33 are the FEC-W, FEC-M and A7C-FEC-M Alternatives. AU33 is in the south part of Cristianitos Canyon and the San Mateo Creek valley. The unit begins at the south end of AU32 on the hill adjacent to the south side of Avenida Pico, extends south across the Cristianitos subunit of San Onofre State Beach (SOSB) and connects to I-5.

The project elements in AU33 would include remedial grading, cut and fill, the toll road travel lanes, realignment of Cristianitos Road over the toll road, an interchange at Cristianitos Road to and from the north only, the realignment of several roads in SOSB, retaining walls and a soundwall in SOSB, and a soundwall at the edge of residences west of the alignment, an I-5 connector to and from the south only, a bridge over San Mateo Creek at I-5, widening of I-5 bridges at San Mateo Creek, reconstruction of the existing I-5/Basilone Road interchange with no direct connection to and from Basilone Road, slight widening of I-5 south of Basilone Road to accommodate the toll road connection to I-5, and soundwalls north and south of I-5 south of Basilone Road. Additionally, AU33 has a soundwall east of the San Mateo Point Housing area on Camp Pendleton, west of I-5.

Visual Quality Impacts on Views from San Mateo Campground Looking Southwest (View Point 33A)

The unmitigated visual simulation of Figure 4.18-54, shown previously, shows the area of the view that will be altered with implementation of these Alternatives. Fill will be placed for the road bed that obscures most of the hill and a retaining wall adjacent to the west side of the toll road. Fill will also be added for a ramp for the realigned Cristianitos Road that crosses over the toll road in the left of the view. A soundwall is part of these Alternatives but is not shown in the unmitigated view so that the project elements behind the soundwall can be seen.

The following with-project visual quality rating is provided for the mitigated project five years following completion of construction, as shown in the mitigated visual simulation. The vividness will change from moderately high (rated 5) to moderately low (rated 3) because the project will obscure most of the hill which is the dominant component of the existing conditions view. The intactness of this view will change from moderate (rated 4) to moderately low (rated 3) because the road embankment is so close to the Campground that it will become a prominent feature in the view instead of the hill. The retaining wall and guard rail will contribute urban features to the view which is currently largely undeveloped. The unity of the visual elements will change from high (rated 6) to moderately low (rated 3) because the plane of the fill slopes and straight lines of the edge of the retaining wall and the edge of the toll road surface will substantially interrupt the existing curvilinear patterns of the view. The overall visual rating would change from moderately high (rated 5) to moderately low (3 + 3 + 3 = 9, 9/3 = 3). This change of two rating points in visual quality would be a substantial adverse impact on sensitive viewers in SOSB, especially at the Campground.

Visual Quality Impacts on Views from San Onofre 1 Housing Area Looking Northwest (View Point 33B)

The unmitigated visual simulation of Figure 4.18-55, shown previously, shows the area of the view that will be altered with implementation of these Alternatives. The project elements will be visible along a narrow horizontal band at the base of the hills in the background beyond the agricultural fields. These elements include fill on the right of the simulation, a retaining wall in the center and elevated structure in the left of the view. The edge of the toll road is also visible as well as the soundwall west of San Mateo Campground.

The following with-project visual quality rating is provided for the mitigated project five years following completion of construction, as shown in the mitigated visual simulation. The vividness of the view will remain moderately high (5) because only a narrow band of the view will change at the base of the hills in the distance and the silhouette of the hills that frame the view scene will not change. The intactness rating would change from moderately high (rated 5) to moderate (rated 4) because the long retaining wall and elevated structure, although a small part of the view, will detract from the overall view. The unity of the visual components would remain high (rated 6) because the diagonal line of the edge of the toll road and elevated structure against the hills will not substantially interrupt the existing visual pattern of agricultural fields and the hills in the background. The overall visual rating of the mitigated with-project conditions from this viewpoint is moderately high (5 + 4 + 6= 15, 15/3 = 5). This change of 0.30 in the visual quality rating would be an adverse but less than substantial impact on residential viewers in the San Onofre Housing 1 area.

Visual Quality Impacts on Views From San Onofre 1 Housing Area of AU33 Looking South

The impacts of the elevated structure of the connector ramps on views from San Onofre 1 Housing were described previously for view point 33B. Residents in the south part of this housing unit will have closer views of this structure along with the existing views of I-5. The connector ramps will be below the elevation of the housing area and will not obstruct ocean views from this area because the ramp profile does not extend above the adjacent vegetation and slopes. Therefore, the visual quality impacts of the project in AU33 on views from the San Onofre 1 Housing area to the south will not be adverse.

Visual Quality Impacts on Views from Camp Pendleton North of Camp San Mateo Cantonment Looking Northwest (View Point 33C)

The wireframe of the project conditions shown previously in Figure 4.18-56 shows the area of grassland and scrub that will be removed for cut and fill in this view. The edge of the toll road and the vehicles on it will be visible in the center of this view. This area is visible from the Camps Talega, Cristianitos and San Mateo cantonments on Camp Pendleton. Following mitigation, when vegetation that blends with the area has grown on the cut slope, the vividness, intactness and unity of the view would be similar to the existing conditions. Therefore, the visual quality rating would remain moderate (rated 4.3) and there would not be an adverse impact on visual quality. This minor visual change related to this viewpoint would not hinder military training operations on this part of the Base. Therefore, there will not be an adverse impact from this viewpoint related to the Camp Pendleton training mission.

Visual Quality Impacts on Views from San Onofre State Beach Trail Looking Northeast (View Point 33D)

The unmitigated visual simulation of Figure 4.18-57, shown previously, shows the area of the view that will be altered with implementation of these Alternatives. The elevated connector ramps over I-5 will introduce a second straight-edged feature into the view. This feature is visible above the existing I-5 structure in the distance but below the tops of the trees which screen parts of the structure in this view.

Project mitigation will not be visible in this view, therefore, the unmitigated and mitigated visual simulations are the same. It should be noted that the existing vegetation will continue to mature and may provide some additional screening of the proposed connector ramp. Implementation of these Alternatives will change a small part of the view but none of the existing landscape elements will be removed or changed. Therefore, the vividness of the view will remain moderate (rated 4). The intactness would be reduced from moderate (rated 4) to moderately low (rated 3) because the elevated structure above I-5 would detract from the view. The unity of the visual components would remain moderately high (rated 5) because the addition of the straight line of the elevated structure above the existing I-5 will not substantially interrupt the existing visual pattern. The overall visual rating of the with-project conditions from this viewpoint is moderate (4 + 3 + 5 = 12, 12/3 = 4). Therefore, the change in visual quality rating of 0.30 point with the project from this viewpoint would be an adverse but less than substantial impact.

Visual Quality Impacts on Views from Upper Trestles Surfing Area Looking Toward San Mateo Creek (View Point 33E)

The unmitigated visual simulation of Figure 4.18-58, shown previously, shows the area of the view that will be altered with implementation of the project. The elevated connector ramp is visible between the bluffs on the right and left of the view, below the top of the distant hills but above the line of trees in the central part of the view. The light color and engineered line of the concrete connector ramp will contrast with the other view components.

Project mitigation will not be visible in this view, therefore, the unmitigated and mitigated visual simulations are the same. Implementation of the connector ramps will change a small part of the view but none of the existing landscape elements will be removed or changed. Also the ramp will not be visible above the horizon line. Therefore, the vividness of the view will remain moderately high (rated 5). The intactness would be reduced from high (rated 6) to moderately high (rated 5) with the introduction of the elevated connector ramp. The unity of the visual components would be reduced from high (rated 6) to moderately high (rated 5) because of the strong line of the connector ramp that somewhat interrupts the pattern between the trees and ridge in the distance. The overall visual rating of the with–project conditions from this view point is moderately high (5 + 5 + 5 = 15, 15/3 = 5). This change in visual quality rating of 0.67, would be an adverse but less than substantial impact of the project from this view point.

Visual Quality Impacts on Views from San Onofre State Beach Looking Northeast Toward Basilone Road (View Point 33F)

The unmitigated visual simulation of Figure 4.18-59, shown previously, shows the area of the view that will be altered with implementation of the project. The elevated connector ramp is visible below the housing pad on the left of the view. The light color and engineered line of the concrete connector will contrast with the other view components.

Project mitigation will not be visible in this view, therefore, the unmitigated and mitigated visual simulations are the same. The connector ramps will change a small part of the view but none of the existing landscape elements will be removed or changed. Also, the ramp will not be visible

above the horizon line. Therefore, the vividness of the view will remain moderately high (rated 5). The intactness would be reduced from moderately high (rated 5) to moderate (rated 4) with the introduction of the elevated connector ramp. The unity of the visual components would remain high (rated 6) because the straight line of the structure is a small part of the view, echoes the straight edge of the grassland area and will not substantially interrupt the existing visual pattern. The overall visual rating of the with-project conditions from this view point is moderately high (5 + 4 + 6 = 15, 15/3 = 5). This change in visual quality rating of 0.30 would be an adverse but less than substantial impact of the project from this viewpoint.

Visual Quality Impacts On Views From Upper Trestles Surfing Area Looking Northeast Toward Basilone Road (View Point 33G)

Figure 4.18-60 shows the existing conditions photo and unmitigated and mitigated visual simulations of the project in AU33 is from a view point in the Upper Trestles surfing area near the view point in Figure 4.18-58 but looking northeast toward Basilone Road. The view point location, view point 33G, is shown on Figure 4.18-60. Although the landform is slightly different than shown previously in Figure 4.18-58, the landscape components, visual character and visual quality rating are the same as described for the view toward San Mateo Creek in Figure 4.18-58. Project mitigation will not be visible in this view, so the mitigated and unmitigated visual simulations are the same.

The visual simulation of the with-project conditions in Figure 4.18-60 shows that the I-5 connector ramp will be visible to the left of the bluff in the right side of the view. The ramp is visible at the base of the hills in the distance. The light color and engineered line of the concrete connector will contrast with the other view components. A shorter segment of the ramp is visible in this view than in Figure 4.18-58.

As with the previous view in Figure 4.18-58, implementation of the connector ramps will change a small part of the view but none of the existing landscape elements will be removed or changed. Also, the ramp will not be visible above the horizon line and very little of the hills in the background will be concealed by the ramp. Therefore, the vividness of the view will remain moderately high (rated 5). The intactness would be reduced from high (rated 6) to moderately high (rated 5) with the introduction of the project structure. The unity of the visual components would change from high (rated 6) to moderately high (rated 5) because the straight horizontal band of the connector would detract from the curvilinear pattern of the ridge and tree line silhouette in front of the ridge. The overall visual rating of the with-project conditions from this view point is moderately high (5 + 5 + 5 = 15, 15/3 = 5.0). This change in visual quality rating of 0.6, would be an adverse but less than substantial impact of the project from this viewpoint.

Visual Quality Impacts On Views From San Mateo Point Housing Looking Southeast (View Point 33H)

The unmitigated visual simulation of Figure 4.18-61, shown previously, shows the area of the view that will be altered with implementation of the project but without the soundwall. This was done so that the elevated connector ramp, which will be hidden from view by the soundwall

shown in the mitigated visual simulation, can be seen. Project mitigation will not be visible in either the unmitigated or mitigated view.

As shown in the mitigated visual simulation, the soundwall will obscure all of the existing view behind it except for the crest of the ridge in the background, and the soundwall will become the dominant feature in the view. Therefore, the vividness of the view will change from moderate (rated 4) to low (rated 2). The intactness would be reduced from moderate (rated 4) to low (rated 2) with the introduction of the soundwall. The unity of the visual components would change from moderate (rated 4) to low (rated 2) because the pattern of hills and ridges behind I-5 will be eliminated from the view. The overall visual rating of the with–project conditions from this view point is low (2 + 2 + 2 = 6, 6/3=2.0). This change in visual quality rating of 2.0 points would be a substantial adverse impact of the project from this view point.

Visual Quality Impacts on Views from San Onofre Housing Area of AU33 Looking South

The impacts of the elevated structure of the connector ramps on views from San Onofre 1 Housing were described previously for viewpoint 33B. Residents in the south part of this housing unit will have closer views of this structure along with the existing views of I-5. The connector ramps will be below the elevation of the housing area and will not obstruct ocean views from this area because the ramp profile does not extend above the adjacent vegetation and slopes. Therefore, the visual quality impacts of the project in AU33 on view 5 to the south from the San Onofre 1 Housing area will not be adverse.

Impacts on Regionally Outstanding Views in AU33

There are no regionally outstanding views in the viewshed of AU33. Therefore, there are no project impacts related to regionally outstanding views associated with AU33.

Impacts on Community Character in AU33

There are no community elements or landmarks within this AU that will be removed for implementation of these Alternatives. Therefore, there will not be any adverse impacts on community elements or landmarks.

The alignment through AU33 would conflict with the policies and goals of SOSB. As previously described in Section 4.18.1, the SOSB General Plan identifies scenic resources including geomorphic features and vegetation to be of great importance and it is SOSB policy to protect these resources from all degrading and undesirable intrusions. The removal of vegetation, including sage scrub, and the cut and fill alterations of the landform in SOSB would conflict with this policy. Partial view blockages would occur for westbound drivers on Cristianitos Road in SOSB. The blockage of views from Cristianitos Road in SOSB would conflict with this policy. Therefore, implementation of the project along AU33 would have a substantial adverse impact related to adopted SOSB policies and plans. However, the lease from the Department of the Navy (DON) is subordinate to the DON reserved right to convey rights-of-way for road through the leasehold upon consultation with State Parks.

As described in Section 4.18.1, the County of San Diego has designated I-5 from the City of Oceanside city limits north to the Orange County border as a Scenic Route. The County identifies any physical change which will substantially affect the viewshed of a designated scenic highway to have a significant visual effect on the highway. Implementation of the connector ramps that cross I-5 will introduce a long elevated structure to the views of the densely vegetated San Mateo Creek area and the agricultural fields north of I-5. The connector ramps will be in the foreground view of motorists and would substantially and adversely change the viewshed to the northeast. The southern part of the connector ramps will also obstruct ocean views for motorists on I-5. Therefore, implementation of the project along the south part of AU33 would have a substantial adverse impact related to adopted policies and plans of San Diego County.

The changes in visual quality related to the alignment through AU33, as described in this Section, would not reduce the training capability on MCB Camp Pendleton. Therefore, there would be no adverse impacts on Camp Pendleton training policies related to visual resources.

Assessment Units 13 and 40

AU 13, associated with the CC Alternative and AU40 associated with the I-5 Alternative each include grading and some widening of the pavement adjacent to I-5 through MCB Camp Pendleton. This project feature would be a minor visual change from the existing visual condition along the I-5 and would not be a substantial adverse visual impact. Therefore, these Alternatives will not have an adverse effect on the MCB Camp Pendleton Military Mission.

Impacts of the No Action Alternatives

The No Action Alternatives do not include the construction or operation of any SOCTIIP transportation improvements. Therefore, these Alternatives will not result in any adverse impacts related to light and glare, construction, visual quality, view quality and community character.

Impacts Related to Light and Glare Common to all Build Alternatives

There will be light and glare impacts associated with the build Alternatives and these impacts will occur under all the build Alternatives. For the corridor Alternatives, toll collection plazas and their lanes and ramps will be continuously lit. The mainline corridor will not be continuously lit. The I-5 Alternative will have roadway lighting. These new sources or new locations of light have the potential to spill onto adjacent land uses. These light and glare impacts would be substantially adverse.

Construction Impacts Related to Visual Resources Related to Camp Pendleton

There will be construction related visual impacts associated with each of the build Alternatives. Construction impacts include vegetation removal, grading, earthwork including cuts in the terrain and placement of fill, over excavation to address landslides and local soil conditions, and the presence of vehicles and various machinery to construct the project. These visual impacts would be adverse but they are considered less than substantial because they are short-term during

the construction phase of the project only. This visual impacts Section analyzes the impacts that will be evident following construction of the project.

Summary of Short and Long Term Impacts for Visual Resources Related to Camp Pendleton

Table 4.21-30 provides a summary of the impacts of the SOCTIIP Alternatives for visual resources related to the Military Mission. This table identifies the short and long term visual impacts anticipated for the SOCTIIP build Alternatives on MCB Camp Pendleton.

4.21.19.4 Mitigation for Visual Resources Related to Camp Pendleton

The following mitigation measures were developed to minimize as much as possible the adverse impacts of the SOCTIIP Alternatives related to visual resources. These mitigation measures are for long term visual impacts. There are no mitigation measures for short term visual impacts.

Measure AS-1. Adjacent landforms affected by the build Alternatives shall be recontoured to a 2:1 slope or as determined appropriate through geotechnical investigation to provide a smooth and gradual transition between modified landforms and existing grade and to minimize the appearance of manufactured grading. Use of crib-type retaining walls in place of slopes shall be minimized, except where necessary to provide greater landform diversity, reduce fill slopes, minimize long, flat slope surfaces or potentially salvage rock outcroppings. In areas where sensitive habitat is not prevalent, the top and toe of the slope edges shall be rounded to reduce the angular effects of manufactured grading. The top of slopes where the surface breaks the horizon or ridgeline shall be undulated to avoid a straight edge along the skyline. For slopes greater than 20 m (65.6 ft) in height, terrace drains shall be used to break up slope surfaces.

The TCA or the implementing agency/agencies shall prepare Aesthetic Design Guidelines for the project, similar to the guidelines for the San Joaquin Hills Transportation Corridor and the Foothill/Eastern Transportation Corridor. It is not possible to provide these guidelines at this stage of the project. The guidelines will be developed during final design of a preferred Alternative. The Design Guidelines shall specifically address grading, berm design, slopes, benches and the incorporation of sound and retaining walls. These Guidelines will be used in conjunction with the Landscape Design Guidelines described in measure AS-2 to minimize the visual impacts of the build Alternatives.

Measure AS-2. The TCA or the implementing agency/agencies shall prepare Landscape Design Guidelines that will specify plant species that will either be seeded or planted on all exposed areas such that these areas will blend with the surrounding vegetated areas. Native vegetation shall be placed in appropriate locations and densities to fit into the natural setting. Landscaping with varied height and species diversity shall be used and material selection, location of native plant materials and sculptured grading shall emulate the adjacent natural setting. Terrace drains shall be screened with periodic placement of native plant materials in a random manner to help blend these drainage facilities into the slope and not unintentionally emphasize these facilities. The Landscape Design Guidelines will include the locations of shrubs and/or vining species, where appropriate, at the base of soundwalls to blend these structures as much as possible with

the surrounding area. All landscaping treatments and materials shall be consistent with the Landscape Design Guidelines.

Measure AS-3. Lighting per Caltrans policies and procedures as set forth in the Caltrans Traffic Manual shall be installed by the TCA or implementing agency or agencies along the corridor or I-5, if one of these build Alternatives is selected. Lighting shall be such that Partial Interchange Lighting (PIL) with two electroliers at each interchange ramp, positioned per Caltrans standards, is provided. Additional and/or supplemental lighting shall be provided where necessary for safety. Toll collection plazas and their adjacent roadways shall be continuously lit. The mainline corridor shall not be continuously lit.

Lighting per County of Orange or local jurisdiction standards shall be installed along the arterials under the AIO Alternative by the implementing agency/agencies.

Measure AS-4. In conjunction with operation of the corridor Alternatives, light shall be applied as effectively as possible by the TCA, minimizing both the glare of any light source and the spillover of light onto areas outside of the corridor right-of-way, particularly open space areas on the Donna O'Neill Land Conservancy. The vertical or horizontal illuminance from roadway lighting sources shall not illuminate any surface outside of the right-of-way greater than 1/10 of the road's average horizontal illuminance.

In conjunction with operation of the AIO and I-5 Alternatives, light shall be applied as effectively as possible by the implementing agency/agencies, minimizing both the glare of any light source and the spillover of light onto areas outside of the road rights-of-way.

4.21.20 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR ENERGY RELATED TO CAMP PENDLETON

4.21.20.1 Affected Environment for Energy Related to Camp Pendleton

Energy is currently consumed in the study area for the construction of public and private projects, for the operation of automobiles and trucks, and for operation of existing land uses including Camp Pendleton.

4.21.20.2 Methodology for Energy Related to Camp Pendleton

Section 4.19.2 (Methodology Related to Energy) describes the methodology for assessing impacts related to energy.

4.21.20.3 Impacts for Energy Related to Camp Pendleton

Construction Impacts for Energy Related to Camp Pendleton

Construction energy effects are indirect effects that involve the one-time non-recoverable use energy associated with the construction of the road, structures and materials for each of the SOCTIIP build Alternatives. The use of energy for the construction of the build Alternatives

would be a short term adverse impact on energy resources. The No Action Alternatives would not result in the construction of any SOCTIIP improvements and, therefore, would not result in short term demand for energy resources associated with construction. Energy consumed in the construction of the SOCTIIP Alternatives would not result in impacts to Camp Pendleton.

Long Term Impacts for Energy Related to Camp Pendleton

The long term impacts related to energy under the SOCTIIP build and No Action Alternatives would involve energy used by the operation of vehicles, although energy consumed in the operation of the SOCTIIP Alternatives would not result in impacts to Camp Pendleton.

Summary of Impacts for Energy Related to Camp Pendleton

Energy use generated by the SOCTIIP Alternatives will not result in adverse construction or long term impacts on Camp Pendleton from energy use.

4.21.20.4 Mitigation for Energy Related to Camp Pendleton

No mitigation is required for impacts to energy on Camp Pendleton because energy use generated by the SOCTIIP build Alternatives will not affect the Base.

4.21.21 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR EARTH RESOURCES RELATED TO CAMP PENDLETON

4.21.21.1 Affected Environment for Earth Resources Related to Camp Pendleton

The alignments of the SOCTIIP build Alternatives trend generally north to northwest across the foothills of the Santa Ana and Santa Margarita Mountains. These mountains are in the Peninsular Ranges Physiographic Province of California, which is characterized by its generally northwest trending mountains and geologic structure. This Province is bounded on the north by the Transverse Ranges Province, which is characterized by its east-west geologic structural and topographic grain and on the east by the Colorado and Mojave Desert Provinces.

The most complete section of late Mesozoic and Cenozoic geologic units in the north part of the Peninsular Ranges Province is exposed in the foothills and valleys along the alignments of the SOCTIIP build Alternatives. These units are divided into surficial and bedrock units. The surficial units are generally composed of poorly to moderately consolidated sediments of Pleistocene and Holocene geologic age, and generally occur in valley bottoms. The surficial units include landslide deposits within the bedrock units, and man-made fills. The bedrock units consist of a series of clastic sedimentary rocks of Upper Cretaceous to Tertiary geologic age. They are composed dominantly of marine and non-marine sandstones and siltstones that form a blanket that thickens to the south and west with a thickness estimated to be as much as 7,500 m (24,600 ft). Below the sedimentary bedrock units, and not exposed along the alignments of the SOCTIIP Alternatives, are the basement or subjacent series rocks, of Middle to Upper Jurassic geologic age. These rocks form much of the core of the Santa Ana Mountains, and consist of

crystalline and metamorphic rocks that are unconformably overlain by the sedimentary bedrock units.

The locations of the SOCTIIP build Alternatives with respect to the geologic units and structures in the area are shown on Figures 4.21-18 and 4.21-19.

Principal Surficial Units

Man-Made Fills

There are deposits of artificial (man-made) fill locally along the alignments of the SOCTIIP build Alternatives. In most cases, these fills were likely derived from nearby geologic units and, thus, would be similar in lithology. However, wide variability in material type can occur in man-made fills, because of variability in the source materials (i.e., varied bedrock and alluvial units), and because of variations in the way the fills were placed. Important factors associated with man-made fills include the degree to which the area beneath the fill was prepared before fill placement and the degree to which the fill material was compacted. Depending on site-specific conditions, non-engineered, man-made fill may need to be removed as part of the grading for the SOCTIIP build Alternatives.

Landslide Deposits

As shown on Figure 4.21-19, there are areas of small to very large landslide deposits within the sedimentary bedrock units in the general areas of the SOCTIIP build Alternatives. Certain bedrock units are more prone to landsliding than others. For example, relatively few landslides are mapped in the Santiago Formation, whereas landslides are common in the Monterey and Capistrano Formations.

The lithology of landslide materials is dependant on the bedrock source, and tends to be clayey silt to silty sand. Because these masses have moved, they may be more porous and lower in density than the intact bedrock. These masses are prone to continued downslope movement during or after periods of substantial rainfall. However, some landslide masses may be relatively stable in their current configurations. Although perhaps otherwise stable, renewed downhill movement of a landslide mass can result if grading removes support at the base of the landslide mass or adds weight near the top of a landslide mass. In many cases, landslide deposits would not be suitable for the support of embankments and road improvements. Therefore, these types of materials are commonly avoided, or removed and replaced as compacted fill during grading for a project.

Colluvium

Colluvial deposits are formed by in-place weathering or by downslope creep and slumping of weathered material and are not deposited by streams. Colluvium is locally present along all the alignments of the SOCTIIP build Alternatives, specifically in landslide head scarp areas, on gentle slopes and over parent material which is more susceptible to in-place weathering. Colluvial deposits are derived from the underlying or locally adjacent bedrock and, therefore, are

of varying composition, reflecting the lithology of the parent material. In general, colluvial materials are clay-rich and contain varying amounts of organic material. These materials are typically unconsolidated and uncemented, low in density, lack structure and are poorly sorted to unsorted. Substantial amounts of the parent bedrock may be present as clasts within the colluvium.

Alluvium

Alluvium is present in the bottoms of all the major drainages and many of the minor drainages crossed by the alignments of the SOCTIIP build Alternatives. Alluvium is typically fine- to very coarse-grained sand and gravel, with varying amounts of silt and/or clay. Boulders may be present in the larger canyons or areas susceptible to debris flows. Alluvial deposits typically exhibit poor sorting, moderately to poorly developed lenticular bedding and local cross-bedding. The composition of alluvial deposits is varied, depending on source area and typical stream-flow velocity. Smaller drainages, which are developed on less consolidated and finer-grained bedrock units, typically contain alluvium that is more fine-grained. The fine-grained alluvium is typically of relatively low density and is often compressible. However, the coarse-grained sand and gravel deposits in major drainage courses may be well consolidated and dense. Older deposits of alluvium are locally present along the bottoms of the larger drainages in the area of the SOCTIIP build Alternatives. It is differentiated from active alluvial deposits because it is no longer in the active regime of the stream. Older alluvium is generally similar in lithology to younger alluvium deposits, except the older material may have a higher silt and clay content and may have a higher density.

Non-Marine Terrace Deposits

Non-marine terrace deposits are locally present as uplifted terraces along major drainages and as isolated erosional remnants of alluvial terraces in lower lying areas in the study area. These deposits have been in place for sufficient time for soil development. Terrace deposits are commonly light brown, yellowish-brown and gray conglomerate, and reddish-brown sands and gravels which are moderately consolidated and fine- to coarse-grained, possibly with scattered boulders. The finer material commonly forms a matrix around the larger grains and is normally silty and/or clayey. Poorly developed bedding can be lenticular and/or cross-bedded in nature. Scattered clayey buried soil horizons may be present. These deposits are generally well consolidated and dense, although beds or zones of porous, compressible material may be present. Cobbles and boulders are often present.

Marine Terrace Deposits

As shown on Figure 4.21-19, marine terrace deposits are present along the coast, at the southern ends of the alignments of the SOCTIIP build Alternatives. The deposits are the result of tectonic uplift and/or changes in sea level, which resulted in beach and near-shore deposits being exposed. Soil development in these deposits is dependent on age. Older deposits have well-developed soils with localized, moderately developed calcareous horizons. The deposits are commonly light brown to yellowish-brown to orange, and are fine- to medium-grained sand and silty sand, with local lenses of coarse-grained sand and pebble gravel, especially near the base.

Bedding is commonly poorly developed, but can be lenticular and/or cross-bedded. The deposits are typically well consolidated and dense, except where loosened by weathering.

Bedrock Units

As shown on Figure 4.21-19, the alignments of the SOCTIIP Alternatives cross eight mapped bedrock units, which, from youngest to oldest, are: the Capistrano, Monterey, San Onofre Breccia, Topanga, Sespe, Santiago, Silverado and Williams Formations. The general characteristics of these Formations are described in the following Sections.

Capistrano Formation

The siltstone member of the Capistrano Formation is present along the southwest part of the study area, along most of I-5 through San Clemente and along parts of the alignments parallel to Avenida Pico, and north to Ortega Highway. This Formation is present along the eastern alignments, from their intersection with I-5, north to about the trace of the Cristianitos Fault. The Capistrano Formation is generally composed of medium-gray to brown, clay-rich, micaceous siltstone. Whitish-gray sandstone is common in poorly developed beds and lenses. Locally hard, dark gray to bright orange, calcareous concretions form irregular discontinuous beds. Below the oxidation zones, the siltstone is commonly dark olive-gray and, when freshly exposed, has a strong petroliferous odor. Locally, thin interbeds of well-developed clay are present. Gypsum-filled joints and irregular seams are common in the oxidized part of the siltstone.

General characteristics of the Capistrano Formation (siltstone facies) are:

- Erodibility is moderate.
- Expansivity ranges from moderate to low.
- Rippability is typically easy.
- Collapsibility/compressibility is generally low.
- Slope stability is generally poor for natural and cut slopes.
- Suitability for fill is poor.
- Liquefaction potential is low.
- Permeability is low.

Monterey Formation

The Monterey Formation is present in a small area west of Cristianitos Creek and south of the existing electrical substation at the end of Avenida Pico.

The Monterey Formation is an interbedded mix of thinly bedded siltstones, claystones and sandstones. The siltstones are commonly gray to greenish-gray to buff, thinly bedded and commonly diatomaceous and/or tuffaceous. The siltstones are poorly to well indurated and commonly sandy and/or clayey. The claystones are commonly gray to olive-gray to buff, thinly bedded and commonly sandy or silty. They are generally poorly to moderately indurated. The sandstones are very light gray to gray, commonly stained orange, predominately very fine- to

fine-grained and feldspathic. They are unconsolidated to moderately cemented, generally with calcareous cement and are commonly micaceous and locally tuffaceous. In most areas, the tuffaceous component of the sandstones and siltstones is bentonitic and can result in beds to about 30 centimeters (cm) (one ft) of nearly pure clay. Below the oxidation zone, the various lithologies in the Monterey Formation are light gray, to gray, to black. Regionally, the Monterey Formation contains basal coquina limestone beds, travertine beds and substantial amounts of montmorillonite clay.

General characteristics of the Monterey Formation are:

- Erodibility is high.
- Expansivity ranges from moderate to high.
- Rippability is typically easy.
- Collapsibility/compressibility is generally low.
- Slope stability is generally poor to moderate for natural and cut slopes.
- Suitability for fill is poor.
- Liquefaction potential is low.
- Permeability is low.

Santiago Formation

The Santiago Formation is present along about three to four km (two to three mi) of the FEC-M and CC Alternatives, north of San Juan Creek. The Formation is also present along parts of these Alternatives south of San Juan Creek. It underlies the downhill parts of the massive landslide areas along and uphill from the A7C-FEC-M Alternative, on the west side of Cañada Chiquita.

The Santiago Formation is marine in origin, with some possible non-marine parts. It consists predominately of silty to clayey sandstone with subordinate siltstone with basal conglomerates present in some areas. In the lower parts of the unit, the sandstones are grayish-yellow to white to very light gray, silty and/or clayey, massive to broadly crossbedded, and moderately to well-indurated. The medium- to coarse-grained sandstones are generally friable, poorly sorted, contain angular grains and are quartzo-feldspathic in composition. In the upper parts of the unit, the sandstones are grayish-yellow to greenish-gray to brownish-gray, fine- to medium-grained, and poorly bedded. Grains are angular to subangular, poorly to well-sorted, and quartzo-feldspathic in composition with minor biotite. The siltstones are greenish-gray to reddish-brown, sandy and/or clayey, and thinly bedded. In the lower parts, they may be chloritic and are generally lenticular in nature. The basal conglomerates are lenticular in nature and composed of cobbles of red and green metavolcanics, light colored plutonic rocks, quartzite and hard sediments. They are massive and well-indurated. Local, thin, lenticular bodies of greenish-gray clay also occur.

General characteristics of the Santiago Formation are:

- Erodibility is moderate.
- Expansivity is low.

- Rippability is typically moderate.
- Collapsibility/compressibility is generally low.
- Slope stability is generally moderate to good for natural and cut slopes.
- Suitability for fill is good.
- Liquefaction potential is low.
- Permeability is moderate to high.

Silverado Formation

The Silverado Formation appears to be present along the FEC-M Alternative. Along the FEC-M Alternative, the northernmost mapped extent of this Formation is just north of San Juan Creek. South of San Juan Creek, this Formation is exposed locally along Cristianitos Canyon.

The Silverado Formation is thought to be non-marine in origin in the lower parts and mixed marine and non-marine sediments in the upper parts. The lower parts consist of a moderately indurated basal conglomerate overlain by interbedded sandstone, siltstone and claystone. The sandstones are gray, greenish-gray and buff, coarse-grained and generally thickly bedded with some crossbedding with some lower beds being lenticular. Grains are angular to subangular, unsorted to poorly sorted and quartzo-feldspathic in composition, with lesser amounts of biotite, anauxite and carbonates. Sandstones are generally poorly indurated. The interbedded siltstones and claystones are red to brown, with two distinctive clay beds of brownish-gray to olive-brown pisolitic clay and whitish-gray clay near the bottom of the unit. The upper part of the Silverado Formation is predominately massive pebbly sandstones of non-marine origin with fine-grained bedded sandstone in areas representing marine deposition. These are moderately to well-indurated and crossbedded. Minor yellowish-brown siltstone and clayey siltstone is interbedded in thin beds. Regional studies also report local occurrences of lignitic shale beds.

The general characteristics of the Silverado Formation are:

- Erodibility is generally high.
- Expansivity is generally low.
- Rippability is typically moderate.
- Slope stability is generally moderate to good for natural and cut slopes.
- Suitability for fill is generally good.
- Permeability is low to moderately low.

Geologic Structure

The dominant structural features of the Peninsular Ranges Province are northwest to west-northwest trending fault zones. These zones separate large elongated blocks that stand at different structural elevations. Most of the faults either die-out to the northwest, or merge with or are terminated by the east-trending steep reverse faults that form the southern margin of the Transverse Ranges Province. Within this framework, the Santa Ana Mountains are a large flexure which has been tilted upward on the east side along the Whittier-Elsinore Fault zone, producing irregular and complex highlands that slope west toward the sea.

Yerkes and others (1965) include the Santa Ana Mountains within the east margin of a wedge-shaped central block, which is one of four large subdivisions of the Los Angeles basin. Contacts between adjoining blocks are major fault zones of faulting or flexure in the basement rocks along which vertical and lateral movements took place intermittently during the deposition of the superjacent bedrock units.

Uplift occurred during the Pleistocene along the Whittier-Elsinore Fault Zone. Schoellhamer and others (1981) suggest that the structure of the northern Santa Ana Mountains is dominated by a broad, north-plunging anticline that underlies the main mass of the mountains and is truncated on the northeast by the Whittier-Elsinore Fault Zone. Numerous north- to northwest-trending, down-to-the-west, normal faults cut the folds into many blocks. In a broad sense, the west limb of this north-plunging anticline above appears as a homoclinal sequence (Morton and others, 1973) of mostly westerly-dipping rocks. Three mapped inactive faults disrupting the strata of the homoclinal feature in the immediate area of the alignments are the Aliso Viejo, Mission Viejo and Cristianitos Faults. These faults are roughly subparallel to each other and are about three to five km (two to three mi) apart.

Groundwater

The presence of groundwater in bedrock units in the study area is generally at depths greater than would be encountered during construction of the SOCTIIP build Alternatives. However, groundwater may be encountered in deep cuts, particularly those created for landslide and slope stability remediation. Perched groundwater may be encountered locally within cut slopes, ancient landslides and at fault zones present along the alignments of the SOCTIIP build Alternatives.

Groundwater also occurs at relatively shallow depths, on the order of a few m (several ft) in some canyon bottoms and local depressions. For example, shallow groundwater conditions were observed in Cañada Chiquita. Other locations of shallow groundwater conditions are segments of Cristianitos Canyon, San Juan Creek, Cañada Gobernadora, Segunda Deshecha Cañada and San Mateo Creek. Shallow groundwater may also be present to a limited extent in some of the smaller drainages that are not identified as wetlands or having perennial stream flow.

Figure 4.21-20 show the locations of known water wells in the vicinity of the alignments of the SOCTIIP build Alternatives. The operational status of these wells was not confirmed as a part of the analysis for this EIS/SEIR. In addition to the known wells shown on Figure 4.21-20, there may be other wells for which records are not currently available.

Faulting and Seismicity

Being located in southern California, the SOCTIIP study area is in a seismically active region and is subject to seismically related geologic hazards. These hazards are related to the principal regional active faults in the region, which include the San Andreas, Elsinore, San Jacinto and Newport-Inglewood Faults.

As shown on Figure 4.21-18, the alignments of the SOCTIIP Alternatives cross several bedrock faults. However, none of these faults is known to be active, which is defined as having experienced displacement within Holocene geologic time (defined as approximately the most recent 11,000 years). The Mission Viejo Fault has been classified as potentially active, based on displacements of materials of Quaternary geologic age. However, it is not considered to be capable of generating ground shaking as strong as the active regional faults noted above.

In addition to the known, mapped faults, recent studies (Grant and others, 1999; and Rivero and others, 2000) have suggested the possibility of blind thrust faults beneath the San Joaquin Hills (i.e., the hypothesized San Joaquin Hills Blind Thrust) and offshore (i.e., the hypothesized Oceanside and Thirtymile Bank Detachments) although the existence of these thrust faults is speculative. In addition to answering questions regarding whether these blind thrust faults actually exist, additional studies would help to define their recency of activity and their capability to generate large earthquakes in the study area.

4.21.21.2 Methodology for Earth Resources Related to Camp Pendleton

The methodology for assessing potential impacts related to earth resources are described in detail in Section 4.20.2 (Methodology Related to Earth Resources).

4.21.21.3 Impacts for Earth Resources Related to Camp Pendleton

Construction Impacts for Earth Resources Related to Camp Pendleton

Earthquake Damage

Fault Movement. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to fault movement on MCB Camp Pendleton.

Liquefaction. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to liquefaction on MCB Camp Pendleton.

Landslides. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to landslides on MCB Camp Pendleton.

Differential Compaction and Seismic Settlement. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to differential compaction and seismic settlement on MCB Camp Pendleton.

Ground Rupture. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to ground rupture on MCB Camp Pendleton.

Ground Shaking. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to ground shaking on MCB Camp Pendleton.

Tsunami. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to tsunami on MCB Camp Pendleton.

Seiches. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to seiches on MCB Camp Pendleton.

Flooding. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to flooding on MCB Camp Pendleton.

Waste Disposal Problems

Change in Groundwater Level. Locally, temporary construction dewatering may be required during construction of the SOCTIIP build Alternatives. However, no long term groundwater pumping is anticipated for any of the build Alternatives. Therefore, there is a potential for temporary impacts (lowering of water levels) at local groundwater wells, but no permanent impacts are anticipated related to dewatering. The known wells in the vicinity of these Alternatives are shown on Figure 4.21-20.

If any currently unknown active wells are discovered within the disturbance limits, it is assumed that they would be abandoned properly, but would be replaced as part of project construction, and therefore no long term adverse impacts to groundwater levels are anticipated under these Alternatives.

The following SOCTIIP build Alternatives have the potential for temporary impacts (lower of water levels) at local groundwater wells during construction:

- FEC-W Alternative.
- FEC-M Alternative.
- CC Alternative.
- I-5 Alternative.

The following SOCTIIP build Alternative has the potential for temporary impacts (lower of water levels) at local groundwater wells during construction and may require the replacement of some existing wells. In addition, this Alternative has the potential for permanent groundwater level lowering at a mapped spring located about 0.8 km (0.5 mi) south of Ortega Highway:

- A7C-FEC-M Alternative.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not result in temporary or permanent changes in groundwater levels. Therefore, the No Action Alternatives would not result in adverse impacts related to groundwater levels.

Disposal of Excavated Material. It is estimated that the earthwork for most of the SOCTIIP build Alternatives will generate excess cut material, which will require off-site disposal unless the final design studies for the selected Alternative can adjust the project grading to accommodate this excess material. If not, a suitable off-site disposal area(s) will need to be identified. As a result, the generation of excess material under the SOCTIIP build Alternatives may be an adverse impact.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and, therefore, would not require the disposal of excess soil from earthwork. Therefore, the No Action Alternatives would not result in the any impacts related to disposal of excavated materials.

Percolation of Waste Material. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to percolation of waste material on MCB Camp Pendleton.

Slope and/or Foundation Instability

Landslides and Mudflows. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to landslides and mudflows on MCB Camp Pendleton.

Unstable Cut and Fill Slopes. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to unstable cut and fill slopes on MCB Camp Pendleton.

Collapsible and Expansive Soil. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to collapsible and expansive soil on MCB Camp Pendleton.

Trench Wall Stability. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to trench wall stability on MCB Camp Pendleton.

Erosion, Sedimentation and Flooding

Erosion of Graded Areas. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to erosion of graded areas on MCB Camp Pendleton.

Alteration of Runoff. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to alteration of runoff on MCB Camp Pendleton.

Unprotected Drainage Ways. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to unprotected drainage ways on MCB Camp Pendleton.

Increased Impervious Surfaces. The SOCTIIP build Alternatives will include the construction of new pavement and various related structures, which will reduce the amount of natural ground surface over which percolation of rainfall and other surface water can occur. The total area of new pavement for the SOCTIIP build Alternatives is a relatively small fraction of the total surface area of the drainage basins in the study area. The SOCTIIP build Alternatives will have an adverse impact with respect to an increase in impervious surfaces, as follows:

- FEC-W Alternative: 26 km (16 mi) of new pavement and related structures.
- FEC-M Alternative: 26 km (16 mi) of new pavement and related structures.
- CC Alternative, 19 km (11 mi) of new pavement and related structures
- A7C-FEC-M Alternative : 26 km (16 mi) of new pavement and related structures.
- I-5 Alternative, slight increase in impervious surfaces.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not alter any natural ground surface. Therefore, the No Action Alternatives would not result in adverse impacts related to impervious surfaces.

Land Subsidence

Extraction of Groundwater, Gas, Oil and Geothermal Energy. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to extraction of groundwater, gas, oil or geothermal energy on MCB Camp Pendleton.

Hydrocompaction and Peat Oxidation. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to hydrocompaction and peat oxidation on MCB Camp Pendleton.

Volcanic Hazards

Lava Flow. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to lava flow on MCB Camp Pendleton.

Ash Fall. As described in Section 4.20, there are no impacts associated with the construction and/or operation of any of the SOCTIIP build Alternatives related to ash fall on MCB Camp Pendleton.

Long Term Impacts for Earth Resources Related to Camp Pendleton

The long term impacts related to earth resources under the SOCTIIP build Alternatives would be the same as discussed in Section 4.20.22.3 (Construction Impacts for Earth Resources Related to the Military Mission) as they relate to impervious surfaces and permanent groundwater lowering at a mapped spring located about 0.8 km (0.5 mi) south of Ortega Highway. There would be no other long term impacts related to earth resources under the SOCTIIP build Alternatives. There would be no adverse long term impacts related to earth resources under the No Action Alternatives.

Summary of Impacts for Earth Resources Related to Camp Pendleton

Table 4.21-31 summarizes the potential adverse impacts of the SOCTIIP build and No Action Alternatives related to earth resources.

4.21.21.4 Mitigation for Earth Resources Related to Camp Pendleton

Standard investigation, design and construction practices will be conducted and implemented for the selected Alternative, if a build Alternative is selected for implementation. A substantial amount of preliminary work has been conducted by the TCA, in part, to support the preparation of the Technical Report and the EIS/SEIR analysis related to earth resources. As a result of the initial studies and designs, many potential impacts related to earth resources have been identified and would be avoided or reduced based on standard design and construction techniques incorporated in the description of each Alternative. For example, existing landslides or potentially unstable slopes were identified, and recommendations have been provided for their treatment to obtain adequate stability when construction is complete.

TCA Final EIR No. 3 identified three specific mitigation measures (G-1 through G-3) for geotechnical, geology and soils issues. These measures are described below, with minor modifications and refinement to address the current SOCTIIP build Alternatives. In addition, Measure G-4 was added to address the typical construction phase quality assurance/quality control practice.

Measure G-1. Prior to final design for the selected Alternative, a design level geotechnical report will be prepared for the selected alternative. This report will document potential soil-related constraints and hazards such as slope instability, settlement, liquefaction or related secondary seismic impacts that may be present. Acceptance of the report will be subject to approval by the TCA and other agencies that may have jurisdiction. A minimum factor of safety of 1.5 shall be used to determine the final slope configuration. The report shall also include:

- Evaluation of potentially expansive soils and recommendations regarding construction procedures and/or design criteria to minimize the effect of these soils on the development of the corridor.
- The design level geotechnical studies will identify potentially liquefiable areas and provide recommendations for mitigation. Any areas that require mitigation would be within the disturbed areas, and no additional impacts would result.

Measure G-2. In conjunction with final design, it will be demonstrated that side slopes shall be designed and graded so that the potential for surface erosion of the engineered fill is not increased from natural conditions.

Measure G-3. In conjunction with construction activity, vegetation with good soil-binding characteristics and low water requirements will be planted on engineered slopes to reduce erosion and slope instability.

Measure G-4. A quality assurance/quality control plan will be maintained during construction. This will include observing, monitoring and testing by a geotechnical engineer and/or geologist during construction to confirm that geotechnical/geologic recommendations are fulfilled, or if different site conditions are encountered, appropriate changes are made to accommodate such issues.

Table 4.21-32 summarizes the applicability of each of these mitigation measures to each of the SOCTIIP Alternatives.

4.21.22 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR MINERAL RESOURCES RELATED TO CAMP PENDLETON

4.21.22.1 Affected Environment for Mineral Resources Related to Camp Pendleton

Mineral resources have been mined at various locations in the vicinity of the SOCTIIP build Alternatives, although none are documented for Camp Pendleton.

4.21.22.2 Methodology for Mineral Resources Related to Camp Pendleton

The methodology for assessing impacts related to mineral resources are described in detail in Section 4.22.2 (Methodology Related to Mineral Resources).

4.21.22.3 Impacts for Mineral Resources Related to Camp Pendleton

Considering the geologic conditions present, and the same design and construction assumptions regarding the project, some of the SOCTIIP corridor Alternatives share the same potential impacts as described in Section 4.22, a minor impact related to the availability of mineral resources in San Juan Creek. There are no known, and previously mined, aggregate resources where these Alternatives cross Camp Pendleton.

Construction Impacts for Mineral Resources Related to Camp Pendleton

Loss of Access

Construction of the SOCTIIP Alternatives would not preclude access to known or currently operational mineral resources on Camp Pendleton. Therefore, there are no impacts associated with access to mineral resources under these Alternatives.

Deposits Covered by Changed Land Use Conditions

The SOCTIIP Alternatives extend across San Juan Creek, where there are known, and previously mined, aggregate resources. The SOCTIIP Alternatives would reduce, by a relatively small amount, the availability of aggregate resources only in the San Juan Creek area. No known mineral resources on Camp Pendleton would be impacted by the SOCTIIP Alternatives.

Zoning Restrictions

The SOCTIIP Alternatives do not include zoning changes that would limit access or availability of known mineral resources. Therefore, there are no impacts on mineral resources related to changes in zoning restrictions under these Alternatives.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not require zoning changes that would limit access or availability of known mineral resources. Therefore, the No Action Alternatives would not result in the any impacts related to mineral resources.

Long Term Impacts for Mineral Resources Related to Camp Pendleton

The long term impacts related to mineral resources under the SOCTIIP build and No Action Alternatives would be the same as discussed for those Alternatives for construction impacts.

Summary of Impacts for Mineral Resources Related to Camp Pendleton

Because there are no mineral resources identified on Camp Pendleton in the SOCTIIP study area, the SOCTIIP Alternatives will not result in adverse construction or long term impacts on mineral resources on Camp Pendleton.

4.21.22.4 Mitigation for Mineral Resources Related to Camp Pendleton

No mitigation is required for impacts to mineral resources on Camp Pendleton because none of these resources is affected by the SOCTIIP build Alternatives which traverse this part of the Base.

4.21.23 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR PALEONTOLOGICAL RESOURCES RELATED TO CAMP PENDLETON

4.21.23.1 Affected Environment for Paleontological Related to Camp Pendleton

A geologic formation is a mappable rock unit that is differentiated from others based on its physical (lithologic) characteristics. Fossils are incorporated into the rock record by the same processes that result in the deposition of sediments. After death, remains of living organisms decay and then are transported, buried, altered by chemical or physical processes, and eventually exposed by natural erosion or man-made processes. Various geologic formations have differing

potential to produce scientifically significant fossils. Table 4.21-33 includes the rock units exposed in the SOCTIIP study area on MCB Camp Pendleton, a summary of the types of fossils that potentially occur in the unit and the age of each rock unit.

4.21.23.2 Methodology for Paleontological Related to Camp Pendleton

Existing literature pertinent to paleontological resources in, or in the vicinity of, the SOCTIIP study area was reviewed. The study area is defined as the area within the right-of-way and the construction disturbance limits for the SOCTIIP build Alternatives. Record searches of known fossil localities in, or in the vicinity of, the study area for the SOCTIIP Alternatives were conducted at the Natural History Museum of Los Angeles County, Vertebrate Paleontology and Invertebrate Paleontology Sections; San Diego Natural History Museum; San Bernardino County Museum; and the Orange County Fossil Locality Maps at the Orange County Clearinghouse.

4.21.23.3 Impacts for Paleontological Related to Camp Pendleton

Construction Impacts for Paleontological Related to Camp Pendleton

Fossils and their associated contextual data are important, nonrenewable scientific resources and the loss of these paleontological resources resulting from construction of the SOCTIIP Alternatives would be the primary adverse impact of these Alternatives. Earthmoving operations will result in the destruction of fossils and rock units within the construction disturbance limits. It is often not possible to completely eliminate impacts to fossil resources. It is understood that earthmoving activity will, unavoidably, destroy some fossils. Such impacts can be mitigated by collecting and preserving a representative sample of the entire potential assemblage and associated geologic information. However, whether or not a specimen is collected in a representative sampling does not change the inherent significance of that specimen as a non-renewable paleontological resource.

Long Term Impacts for Paleontological Related to Camp Pendleton

The potential for long term adverse impacts of the SOCTIIP build Alternatives related to paleontological resources is indirect. The principal potential long term adverse indirect impact would be the provision of access to currently inaccessible areas of Orange County, thereby increasing human presence in those areas. Increased human presence creates opportunities for increased disturbance to paleontological resources. These possible indirect impacts include human-created erosion, increased natural erosion due to human modification of the environment; damage or erosion created by off-road motor vehicle traffic and increased illegal access and disruption to exposed fossil resources adjacent to the build Alternatives by amateur collectors and construction personnel.

Summary of Impacts for Paleontological Related to Camp Pendleton

Table 4.21-34 provides a summary of the rock units that occur along each SOCTIIP build Alternatives on MCB camp Pendleton and the paleontologic sensitivity of the unit. Alternatives

that include rock units of high, moderate or indeterminate sensitivity would be considered to have the potential for adverse impacts related to paleontological resources on Camp Pendleton.

The No Action Alternatives would not result in adverse impacts related to paleontological resources because these Alternatives do not propose construction of any SOCTIIP transportation improvements on Camp Pendleton in the study area.

4.21.23.4 Mitigation for Paleontological Related to Camp Pendleton

Measure P-1: Pre-Construction Salvage. Prior to the start of any earthmoving activity, an Orange County Certified (OCC) Paleontologist will be retained to conduct pregrading salvage of any significant exposed fossils identified by the OCC Paleontologist prior to any heavy equipment activity in a particular area. Paleontological monitoring of brush removal shall be performed by a qualified paleontologist, under the supervision of an OCC Paleontologist, to locate and salvage additional significant fossil remains not previously visible. The OCC Paleontologist shall prepare a paleontological technical report that includes methodology, results, and an inventory list of significant fossils recovered.

Measure P-2: Monitoring Procedures. Prior to the start of any earthmoving activity, an OCC Paleontologist shall be retained to establish procedures, following these mitigation guidelines set forth in this Paleontological Resources Technical Report, for paleontological resource monitoring by qualified paleontological monitors during grading, and procedures for temporarily halting or redirecting work to permit the sampling, identification and evaluation of the fossils as appropriate. The OCC Paleontologist shall also establish emergency procedures applicable to the discovery of unanticipated significant paleontological resources (e.g. large specimens or significant concentrations of specimens as determined by the OCC Paleontologist). The OCC Paleontologist shall be present at the pregrading conference to explain the established procedures to the construction contractors.

Measure P-3: Construction Monitoring. During all construction activities which involve soil disturbance, the following activities will be conducted:

a. An Orange County Certified Paleontologist will be retained to supervise monitoring of construction excavations and to produce a mitigation plan for the proposed project. Paleontological monitoring will include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. The monitor will have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens.

b. If microfossils are present, the monitor will collect matrix for processing. In order to expedite removal of fossiliferous matrix, the monitor may request heavy machinery assistance to move large quantities of matrix out of the path of construction to designated stockpile areas. Testing of stockpiles will consist of screen washing small samples (approximately 90 kilograms, or 200 pounds) to determine if significant fossils are present. Productive tests will result in screen washing of additional matrix from the stockpiles to a

maximum of 2,700 kg (6,000 lbs) per locality to ensure recovery of a scientifically significant sample.

c. Younger Quaternary Alluvium, San Onofre Breccia and Quaternary Landslide Deposits have a low or indeterminate paleontological sensitivity level, and will be spot-checked in a periodic basis to insure that older underlying sediments are not being penetrated and fossils are not being exposed. All earth-moving in the Williams Formation, Silverado Formation, Santiago Formation, Sespe Formation, Vaqueros Formation, Sespe/Vaqueros Undifferentied, Topanga Formation, Monterey Formation, Capistrano Formation, Niguel Formation, Older Quaternary Alluvium and Quaternary Marine and Non-Marine Terrace Deposits will be monitored full-time. The moderate to high paleontological sensitivity of these formations requires a maximum effort to recover fossils.

d. The Orange County Certified Paleontologist will prepare monthly progress reports to be filed with the client and the lead agencies.

e. Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to allow analysis, and deposited in a designated repository such as the Orange County facility, which shall have the first right-of-refusal of the collection, or the Natural History Museum of Los Angeles County or San Diego Natural History Museum.

f. At each fossil locality, field data forms will record the locality, stratigraphic columns will be measured and appropriate scientific samples submitted for analysis.

g. The Orange County Certified Paleontologist will prepare a final mitigation report to be filed with the client, the lead agencies, and the repository.

Mitigation measures P-1, P-2 and P-3 apply to all of the SOCTIIP build Alternatives on Camp Pendleton. The measures would not apply to the No Action Alternatives because these Alternatives do not propose construction of any SOCTIIP transportation improvements in the study area.

4.21.24 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR PUBLIC SERVICES AND UTILITIES RELATED TO CAMP PENDLETON

4.21.24.1 Affected Environment for Public Services and Utilities Related to Camp Pendleton

Fire Protection and Emergency Medical Services

The OCFA provides emergency medical service approximately 16.9 km (10.5 mi) beyond the Orange County line to Las Pulgas Road on Camp Pendleton, through an agreement with the Base and the County of San Diego. Camp Pendleton is responsible for fire service throughout the Base and for rescue on the Base south of Las Pulgas Road. The Camp Pendleton Fire Department also provides fire protection and emergency medical response services to several areas of southern Orange County through Mutual Aid Agreements with other local fire protection agencies. There are eleven fire stations on Camp Pendleton. Two are in the SOCTIIP

study area: one in Area 63 off Cristianitos Road and the other in Area 52 off Basilone Road (Chief Robert Praytor, Fire Chief, Camp Pendleton Fire Department, April 2002). However, neither of these stations is within the disturbance limits or within 76 m (250 ft) of the disturbance limits of the SOCTIIP build Alternatives and, therefore, were not shown previously on Figure 4.24-1.

Law Enforcement

Law enforcement at Camp Pendleton, which is under exclusive federal jurisdiction, is provided by the Provost Marshall of the Base. In that part of Camp Pendleton that is leased to the State of California for operation of SOSB, law enforcement is provided by the San Diego County Sheriff's Department.

Solid Waste Disposal Services

Camp Pendleton operates two active sanitary landfills for waste generated on the Base. San Onofre Sanitary Landfill is in the SOCTIIP study area off Basilone Road; however, it is not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of the SOCTIIP build Alternatives. This Landfill, scheduled to reach capacity in 2257, can accept a maximum of 1,996 tonne (2,200 tons) of waste per year. Las Pulgas Sanitary Landfill is southeast of the SOCTIIP study area and is not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of the SOCTIIP build Alternatives. It accepts up to 27,216 tonne (30,000 tons) of waste per year and is scheduled to reach capacity in 2184. Box Canyon Sanitary Landfill, also southeast of the SOCTIIP study area and more than 76 m (250 ft) from the disturbance of the SOCTIIP build Alternatives, has been closed for several years. (Don Taylor, MCB Camp Pendleton, April 15, 2002).

Schools

The FUESD operates two public schools on Camp Pendleton. One of these, San Onofre Elementary/Middle School (Kindergarten – 8th Grade) in the San Onofre I Housing Area of the Base, is in the SOCTIIP study area, however, it is not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any SOCTIIP build Alternatives. (Deb McKay, Community Planner, MCB Camp Pendleton, April 2002).

Public Facilities

Camp Pendleton operates seven childcare centers, three youth centers and three community centers on the Base (Sandra Jensen, Assistant Branch Manager Lifelong Learning, April 14, 2002). The San Onofre Youth Center, San Onofre Community Center and a childcare center are in Area 51 off Basilone Road in the northwest part of the Base, and in the SOCTIIP study area. However, these facilities are not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any SOCTIIP build Alternatives. The remainder of these facilities are in the southeast part of the Base and are not in the SOCTIIP study area.

Flood Control Facilities

There are no flood control facilities in the disturbance limits for the SOCTIIP build Alternatives on MCB Camp Pendleton.

Utilities

There are a number of utility facilities and utility lines in the SOCTIIP study area on MCB Camp Pendleton. These utility lines are electric, natural gas, water for domestic use and irrigation, wastewater transmission, and telephone, communication and cable television cables. Utility facilities include wells and sewage treatment facilities. A description of the utility providers and a summary of the major existing utility lines and facilities in the vicinity of the SOCTIIP build Alternatives on MCB Camp Pendleton is provided in this Section. Major utility lines and facilities that are near or crossed by the SOCTIIP build Alternatives are shown later in Figure 4.24-3. Detailed locations of these utilities facilities are shown on maps on file at the TCA office.

Electricity

Electricity providers with facilities in the SOCTIIP study area are Southern California Edison (SCE) and San Diego Gas & Electric (SDG&E). SCE owns and maintains four overhead 220 kilovolt (kV) electrical transmission lines on two sets of towers which extend north from the San Onofre Nuclear Generating Station (SONGS) which is located west of I-5 in San Diego County, south of the Orange County line. These high power transmission lines are the San Onofre to Santiago Nos. 1 and 2, San Onofre to Chino, and San Onofre to Serrano, and are shown along with the SONGS on Figure 4.24-3.

SDG&E owns and operates two tower lines and one H-frame line which extend from the SONGS north on the east side of the SCE lines described above. These high power lines are also shown on Figure 4.24-3. The two tower lines include two 230 kV lines (easterly towers) and 138 kV and 69 kV lines (westerly towers). The H-frame carries 138 kV lines. These high power transmission lines provide electrical service to large numbers of users across an extensive area of southern California. Part of an SDG&E substation, the Talega Substation, is on Camp Pendleton, straddling the Orange/San Diego County line. SDG&E provides service to San Diego and southern Orange Counties. SCE provides service to parts of Los Angeles, Riverside and San Bernardino Counties.

There are a number of lower voltage SDG&E and SCE electrical lines in the SOCTIIP study area. These lines range from 12 kV to 230 kV.

Natural Gas

Natural gas providers with facilities in the vicinity of the SOCTIIP build Alternatives are Southern California Gas (SCG) Company and SDG&E. Natural gas utilities in the SOCTIIP study area include 5.1 centimeter (cm) (2 inch (in)), 7.6 cm (3 in), 10.2 cm (4 in), 15.2 cm (6 in), 20.3 cm (8 in), 25.4 cm (10 in), 30.5 cm (12 in) and 76.2 cm (30 in) pipelines.

Fuel Supply and Transport

There are no fuel supply and transport lines in the disturbance limits of the SOCTIIP build Alternatives on MCB Camp Pendleton.

Water

The San Mateo Aquifer provides the sole source of potable water for the north part of Camp Pendleton and for the agricultural lease area on the Base near San Mateo Creek. The four water wells that supply all the potable water drawn from the San Mateo Aquifer are shown on Figure 4.24-3. Historical production for these wells has fluctuated between 313 hectare feet per year (hafy) (774 acre feet per year (afy)) to 540 hafy (1,335 afy). Recent extraction rates are approximately 445 hafy (1,100 afy). Irrigation water is provided by six wells on or near the leased farmland. Irrigation production has ranged from 158 hafy (390 afy) to 494 hafy (1,220 afy). The potable water wells are from 762 m (2,500 ft) to 884 m (2,900 ft) from the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives. The six irrigation water wells range in distance of 640 m (2,100 ft) to 1,097 m (3,600 ft) from the disturbance limits of these Alternatives.

Waste Water Management

Camp Pendleton provides wastewater collection, treatment and disposal for the areas in its boundaries. The sewer system of forced and gravity mains transports sewage to one of seven sewage treatment plants (STPs) on the Base. Following primary treatment and secondary treatment by trickling filters, the effluent from STPs 11 and 12 is returned through percolation ponds to the groundwater basins. Disposal of the effluent from the STPs is regulated by the SDRWQCB. STP 12, near the confluence of Cristianitos and San Mateo Creeks, and the percolation ponds, approximately 0.8 km (0.5 mi) from I-5 on the southeast side of San Mateo Creek, serve the north part of Camp Pendleton. All wastewater generated in the area is collected and treated at STP 12. The current design flowrate for STP 12 is 132 mld (0.35 mgd). The STP 12 and ponds are east of, and outside the disturbance limits of, the alignments of the FEC-M, FEC-W and A7C-FEC-M Alternatives.

Camp Pendleton maintains and operates 14.2 ha (35 ac) of percolation ponds for STP 12 on the agricultural lease area in San Mateo Valley. A pipe conveys effluent to the detention ponds approximately 1200 feet from STP 12. From there the effluent is pumped approximately 10,800 feet through a force main to the percolation ponds, which are located about 0.8 km (0.5 mi) from I-5. Some of the three effluent/evaporation ponds at STP 12 are used interchangeably as an equalization or emergency storage basin. Effluent is conveyed from the equalization basin through the effluent pipeline to the percolation ponds. These percolation ponds are not within the disturbance limits of any SOCTIIP build Alternatives.

There are also twelve percolation ponds, which together encompass 12.4 ha (30.5 ac), approximately 12 to 15 m (40 to 50 ft) north of the existing right-of-way for I-5, generally south of San Onofre Creek. Treated water from existing STPs 10 and 11 along Basilone Road is

currently being percolated in these ponds. One of these percolation ponds is within the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives for a proposed extended detention basin (EDB).

Communications and Radio Antennae

Communications providers in the SOCTIIP study area are Pacific Bell, AT&T Fiber Optic, MCI Communications and Cox Communications, all of which have communication cables in the study area.

Emergency Evacuation

The SONGS is approximately 2.41 km (1.5 mi) south of the Orange /San Diego County border and south of the disturbance limits of the southernmost SOCTIIP build Alternatives. The SONGS emergency alert system, which is tested once a year, includes 49 sirens scattered throughout an evacuation zone of a 16.1 km (10 mi) radius of the facility. This evacuation zone includes San Juan Capistrano, Dana Point, San Clemente, part of unincorporated south Orange County and part of MCB Camp Pendleton in San Diego County. The sirens are a signal to the public to seek information from the radio or television. If an evacuation were necessary, people would be directed to evacuation routes away from the SONGS. I-5 is the major evacuation route from SONGS and provides the only non-signalized evacuation route between SONGS and I-405 to the north. Ortega Highway, north of SONGS, provides a two-lane route from I-5 to the east. Most surface roads between SONGS and Ortega Highway do not provide through access to Ortega Highway. Cristianitos Road between Avenida Pico and Ortega Highway is a private road with locked gates. I-5 provides the only evacuation route from SONGS to State Route 76 (SR 76) to the south, which does not cross MCB Camp Pendleton. SR 76 provides a route from I-5 to the east.

4.21.24.2 Methodology for Public Services and Utilities Related to Camp Pendleton

Public Services

The physical impacts of the SOCTIIP build Alternatives related to public services facilities would be largely limited to the area of disturbance. Affected public services providers were contacted via mail and asked to provide the locations of their current and planned services and facilities in the study area of the SOCTIIP Alternatives. This correspondence is on file at the TCA. A list of contacted agencies is provided in the Public Services and Utilities Technical Report. Direct impacts to public services facilities were determined by identifying facilities near the alignments of the SOCTIIP build Alternatives, overlaying the disturbance limits for each Alternative on aerial photographs and determining the facilities within the disturbance limits. It is assumed that facilities within the disturbance limits that can not be avoided would be removed to construct the project and that appropriate mitigation for these identified impacts would be provided as described later in Section 4.24.4 (Mitigation Measures).

Utilities

The physical impacts of the SOCTIIP build Alternatives related to public utilities would be largely limited to the area of disturbance. To determine the potential impacts of the SOCTIIP Alternatives related to utilities, a list was developed of utility providers that service the area crossed by the SOCTIIP build Alternatives. Each potentially affected utility provider was sent a letter requesting utility facility maps and property rights information for the area in and adjacent to the disturbance limits of the SOCTIIP Alternatives. A map and list were then compiled of all utilities within and adjacent to the disturbance limits of each SOCTIIP build Alternative. Field reviews were conducted to verify the accuracy of the information and meetings were held with utility company personnel, as appropriate.

Utilities that are within or cross the disturbance limits would be removed, relocated or protected in place during construction. In the preliminary design and in conjunction with the utility providers, all utility lines and facilities within the disturbance limits were identified. During final design, a determination would be made regarding which of the identified utilities will be relocated and plans for the relocations would be developed. In further consultation with utility providers, some obsolete utilities may be removed at the request of the provider. Reports, contacts and other relevant correspondence and documentation for the preparation of this utilities impacts analysis are on file at the TCA.

4.21.24.3 Impacts for Public Services and Utilities Related to Camp Pendleton

Construction and Long Term Impacts for Public Services and Utilities Related to Camp Pendleton

As described earlier in this Section, public services in the SOCTIIP study area include fire protection and emergency medical services, law enforcement, solid waste disposal services, schools, public facilities and flood control. The public services in the vicinity of the alignments of the SOCTIIP build Alternatives are shown later on Figure 4.24-1. The potential impacts of the SOCTIIP Alternatives on these public services are described in this Section.

As described earlier in this Section, there are a number of utility lines and utility facilities in the SOCTIIP study area on MCB Camp Pendleton. These are electric, natural gas, water, wastewater transmission and telephone and cable television lines. Utility facilities are wells, sewage treatment facilities and percolation ponds.

During construction of any of the SOCTIIP build Alternatives, utilities which would potentially be impacted at locations where lines and facilities are within and adjacent to the disturbance limits would be relocated or protected in place. In the preliminary design that is the basis for this analysis and in conjunction with the utility providers, all utility lines and facilities within and adjacent to the disturbance limits were identified. This level of detail is adequate and appropriate for the evaluation of the Alternatives and selection a preferred Alternative. During final design, a determination would be made as to which of the identified utilities would be relocated and plans for the relocations would be developed. In further consultation with utility providers, some obsolete utility facilities may be removed at the request of the provider. Utilities that are not

removed or relocated will be protected in place during construction. Relocation, removal and protection in place are common to all the SOCTIIP build Alternatives. During relocation and removal, as well as other construction activity, there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These potential impacts would be adverse and the potential for their occurrence exists with all the SOCTIIP build Alternatives.

For the SOCTIIP build Alternatives on MCB Camp Pendleton, Tables 4.21-35 and 4.21-36 list the utility lines and facilities within and adjacent to the area of disturbance by type of utility, the provider or owner of the utility and the location of the utility. These utility lines and facilities would either be relocated, removed or protected in place during construction and, as described earlier, the potential exists for these utilities to be damaged or for service to be interrupted during relocation and removal activity. Any other potential impacts related to utilities and utility facilities, if anticipated, are described in this Section.

Impacts related to spills and substances that could potentially be washed from the surfaces of the build Alternatives and could potentially affect the water quality of waterways or aquifers are assessed in the RMP.

The build Alternatives do not include the construction of any residential or commercial uses and, therefore, would not result in increased population or demand for public services in the study area. Section 6.0 (Growth Inducing Impacts) concludes that the SOCTIIP build Alternatives would facilitate but not induce growth beyond the level that is otherwise expected in the foreseeable future. Therefore, the analysis of impacts of potential impacts of the SOCTIIP Alternatives on public services focuses on direct and indirect impacts on services as a result of construction and operation of the build Alternatives.

Fire Protection and Emergency Medical Services

The FEC-M, FEC-W and A7C-FEC-M Alternatives would have both beneficial and adverse impacts on the ability of the OCFA to provide services in the SOCTIIP study area. The ability to move OCFA resources from one area to another would be enhanced by the improved transportation network and paved road access would be improved to areas not currently accessible to emergency equipment. These Alternatives may also provide an effective barrier to the spread of wildfire in currently undeveloped areas. This benefit would also apply to land within MCB Camp Pendleton.

The OCFA has identified several potential adverse impacts of these Alternatives. The risk of wildfires would increase during construction and operation of these Alternatives because approximately 21.79 kilometers (km) (13.54 miles (mi)) of this alignment cross undeveloped land, covered with both native and non-native vegetation that is highly flammable during the dry season. Also, there are few roads and very little irrigated landscape in these areas that could act as fire breaks. Access to these undeveloped areas is limited, generally available only through the existing fire road grid, which precludes easy access to this area of increased fire risk. The potential exists for access to the existing fire road grid to be blocked during construction or by the completed road which would be a potential adverse impact of these Alternatives. The potential for non-fire-related medical emergencies would increase with the presence of

construction workers and heavy machinery during construction of the project and with the presence of vehicles during operation of the corridor. In the case of such emergencies, limited or blocked access, as previously described, would also be an adverse impact of these Alternatives. These adverse impacts related to fire protection would also apply to land within MCB Camp Pendleton serviced by the Camp Pendleton Fire Department. Adverse impacts related to emergency medical service would also apply to land on MCB Camp Pendleton north of Las Pulgas Road, which is serviced by the OCFA through an agreement with the Base and the County of San Diego.

There would be no physical impacts to existing fire stations related to these Alternatives, as there are no fire stations within the disturbance limits for these Alternatives.

Law Enforcement

MCB Camp Pendleton is currently under federal jurisdiction. Legislation (Section 2851 of the Fiscal Year 1999 National Defense Authorization Act (H.R. 3616)) has been passed which authorizes the Secretary of the Navy to grant an easement to the TCA should these Alternatives be selected for implementation. If such an easement is granted to the TCA, concurrent law enforcement jurisdiction would be transferred to the State of California for the segment of these Alternatives that is approved for construction within MCB Camp Pendleton. Concurrent law enforcement jurisdiction on the corridor segment that crosses Camp Pendleton would allow the CHP to provide law enforcement service on this segment. Non-federal law enforcement jurisdiction on the corridor segment through MCB Camp Pendleton is necessary to ensure the provision of adequate law enforcement service on this segment. It is anticipated that the MCB Camp Pendleton Provost Marshall patrol staff would provide back-up law enforcement service on the segment though Camp Pendleton through mutual aid agreements with the CHP. Similar agreements are currently in effect for the segment of I-5 that traverses MCB Camp Pendleton. It is not anticipated that Provost Marshall patrol staff would be added to respond to additional mutual aid calls that may be generated with the FEC-W, FEC-M and A7C-FEC-M Alternatives. Therefore, these Alternatives would not result in adverse impacts related to MCB Camp Pendleton law enforcement services.

There would be no physical impacts to any existing law enforcement facilities related to Alternatives on MCB Camp Pendleton, as there are no law enforcement facilities within the disturbance limits.

Solid Waste Disposal Services

As described later in Section 4.24, Public Services and Utilities, implementation of a number of the SOCTIIP build Alternatives would result in the generation of excess soil and rock material. These Alternatives would have an imbalance in earthwork, with more cut material and than fill. However, balance of this difference between cut and fill will be achieved within the established disturbance limits by making slight modifications to road grades and adjusting the top and toe location of graded slopes. Therefore, these Alternatives would not result in adverse impacts on landfill capacity associated with disposal of excess soil and rock during construction.

The construction contractor could use any open landfill for disposal of excess material and/or waste associated with the project. It is anticipated that the contractor would likely use Prima Deshecha Sanitary Landfill because it is the closest landfill to the project area. However, the contractor may elect to transport excess materials to other landfills.

Excess material would not be disposed of at MCB Camp Pendleton landfills, unless such disposal is approved in advance by agreement of the Environmental Security Department's Solid Waste Branch.

Schools

There are no schools on MCB Camp Pendleton that would be within the disturbance limits of any of the SOCTIIP build Alternatives. SOCTIIP is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, this Alternative would not result in impacts on the ability of the FUESD to provide services on MCB Camp Pendleton.

Public Services Facilities

There are no existing or planned public services facilities within the disturbance limits of the SOCTIIP build Alternatives through MCB Camp Pendleton. Therefore, these Alternatives would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

There are no flood control facilities within the disturbance limits of the SOCTIIP build Alternatives on MCB Camp Pendleton. Therefore, these Alternatives would not result in adverse impacts related to flood control facilities.

Utility Lines and Facilities

Tables 4.21-35 and 4.21-36, list the utilities in and adjacent to the disturbance limits of the SOCTIIP build Alternatives on MCB Camp Pendleton. These are electricity, an electric substation, natural gas, wastewater and telephone, communication and cable television lines. As described earlier in this Section, during construction there is the potential for utility service to be temporarily interrupted or for utility facilities to be damaged. These potential impacts, should they occur during construction of the SOCTIIP build Alternatives on MCB Camp Pendleton, would be adverse.

High Voltage Electrical Transmission Lines and Towers

As described earlier in this Section, SCE and SDG&E own and operate high voltage transmission lines (138 kilovolt (kV), 220 kV and 230 kV) and associated large towers or large poles (that accommodate 138 kV and 220 kV lines) that provide electrical service to large numbers of users across an extensive area of southern California. SDG&E provides service to San Diego County and southern Orange County, while SCE provides service to parts of Los

Angeles, Riverside and San Bernardino Counties. Towers/large poles within the disturbance limits of the FEC-M, FEC-W and A7C-FEC-M Alternatives on MCB Camp Pendleton would need to be relocated. The relocation process is under the purview of the affected utility and is subject to the rules and regulations as set forth by the Public Utilities Commission. During planned relocation activities, customers could be temporarily served through other parts of the electrical grid. As with all utilities in the disturbance limits, the potential exists for service to be temporarily interrupted or for the utilities to be damaged during relocation or construction activities. Should these potential impacts occur to these high voltage lines, service outage could be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts during construction of these Alternatives associated with these high voltage lines would be adverse.

In addition to relocating utility towers/large poles from the disturbance limits, it is anticipated that in some cases, additional towers/large poles will need to be installed outside the alignment disturbance limits. These additional towers/large poles would allow for changing the direction of the utility line alignment on one or the other side of the build Alternative alignment. The affected utility providers will not consult on the final design of relocations and additions of towers/large poles until an Alternative has been selected. However, for these anticipated tower relocations/additions, TCA utility engineers have estimated the maximum number of tower/large poles that may be required, the maximum footprint of temporary and permanent disturbance outside the build Alternative alignment disturbance limits, the maximum permanent disturbance area of the towers/large poles and the maximum permanent disturbance area for the permanent tower/large pole access roads. For the FEC-W, FEC-M and A7C-FEC-M Alternatives, a maximum of 11 towers, 26 poles and 2 pair poles would need to be relocated or added. The maximum area of impacts for these relocations/additions would be 18.1 ha (45 acres (ac)), including 478.5 square meters (sq m) (5150 square feet (sq ft)) of permanent impacts. In addition, there would also be a maximum of 2.0 ha (5.0 ac) of permanent impacts for utility access roads. These estimates for the FEC-W, FEC-M and A7C-FEC-M Alternatives are shown on Table 4.21-37.

The SDG&E Talega Substation is within the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives. These Alternatives would require the temporary use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the Talega Substation. The Talega Substation facility itself will not be directly impacted but the access road will be realigned as part of the project. This impact to the Talega Substation would be adverse.

Percolation Ponds and Wells

One of the twelve percolation ponds on MCB Camp Pendleton, south of San Onofre Creek is within the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives for an extended detention basin (EDB). These Alternatives would result in the temporary use of 0.7 ha (1.7 ac) and permanent acquisition of 0.4 ha (1.0 ac) of the percolation pond for an EDB. This would be an adverse impact of these Alternatives related to this percolation pond. Potential impacts to wells/aquifers are addressed in Section 4.21.10 (Water Quality).

Emergency Evacuation

As described previously in this Section, I-5 is the major emergency evacuation route for SONGS, and is virtually the only non-signalized evacuation route between SONGS and I-405 to the north. Ortega Highway, north of SONGS, provides a route from I-5 to the east that is two-lane and non-signalized over most of its length. The FEC-M-Initial, FEC-W-Initial and A7C-FEC-M-Initial would provide an additional evacuation route from I-5, immediately south of San Clemente, to Ortega Highway and to State Route 241 (SR 241), north of Ortega Highway and east of I-5. The CC Alternative would provide an additional evacuation route from I-5 in San Clemente, to Ortega Highway and to SR 241. To the north, SR 241 connects with State Route 91 to the east, affording access to Riverside and Los Angeles Counties and connects to I-5 and I-405 to the west, providing access to the north and northwest, respectively. These Alternatives would have the beneficial effect of increasing the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason.

The I-5 Alternative would have a slightly positive effect related to emergency evacuation because the additional lanes on I-5 would increase the speed at which evacuations could be completed. However, this Alternative would not provide an alternate evacuation route to I-5 from San Clemente north.

The No Action Alternatives would not result in adverse direct or indirect impacts to public services because there would be no construction associated with these Alternatives that could impact public services. The No Action Alternatives would preclude the beneficial aspects of the build Alternatives for fire protection services including access to currently inaccessible areas and the provision of a firebreak with a new road. These Alternatives would not provide the potential benefit of improved fire, emergency medical and law enforcement response times that the I-5 Alternative could provide due to improved traffic flows on the arterial road system. The No Action Alternatives would not result in adverse direct or indirect impacts to utilities because they include no construction that could impact utilities.

The No Action Alternatives would not have the positive effect related to emergency evacuation of increasing the speed at which evacuations could be completed because these No Action Alternatives would not provide an alternate evacuation route should I-5 become impassable for some reason.

4.21.24.4 Mitigation for Public Services and Utilities Related to Camp Pendleton

The following mitigation measures were developed to avoid or minimize as much as possible the impacts of the SOCTIIP Alternatives related to public services and utilities on MCB Camp Pendleton. Mitigation measures originally identified in the MMP for EIR No. 3 have been incorporated, as appropriate, in these mitigation measures. Mitigation measures not originally identified in EIR No. 3 have been added to address additional impacts identified for the SOCTIIP Alternatives.

The TCA or other agencies implementing a SOCTIIP Alternative (because the TCA would not be the implementing agency for the non-corridor Alternatives) will comply with the requirements

of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property within the right-of-way necessary for the proposed project. The provisions of this Act, as well as mitigation measures related to temporary use and permanent acquisition of property, are addressed in detail in Section 4.4 (Affected Setting, Impacts and Mitigation Measures Related to Socioeconomics and Environmental Justice).

Mitigation Measures for Public Services

Mitigation for Fire Protection, Law Enforcement and Emergency Medical Services

Measure PS-2: Fire Protection. During construction, in areas subject to wildland fires as determined by the OCFA, or the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, the contractor will be required to install signs around construction sites warning of high fire risk and of area closings during the high fire season as declared by OCFA or the MCB Camp Pendleton Fire Department.

Measure PS-3: Fire Protection. During operation of a build Alternative, Caltrans (for the corridor, Ortega Highway and I-5) and/or the local jurisdiction (for local arterials), as appropriate, will install signs along the new or improved road segments in areas subject to wildland fires as determined by the OCFA, or the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, warning of high fire risk and of area closings during the high fire season declared by OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-4: Fire Protection. Emergency call boxes will be installed along the road in undeveloped areas of high and extreme fire hazard, consistent with existing OCFA, Orange County Transportation Authority, Caltrans, TCA and/or local jurisdiction, as appropriate, policies on emergency call boxes.

Measure PS-5: Fire Protection. During construction of a build Alternative, the contractor will be required to maintain access to the existing fire road grid for the OCFA, and the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton.

Measure PS-6: Fire Protection. During final design for a build Alternative, the long term preservation/provision of access to the existing fire road grid for the OCFA, and the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, will be incorporated in the facility design, in consultation with the OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-7: Fire Protection. During construction of a build Alternative, the contractor will implement fuel modification techniques as required by the OCFA, and the MCB Camp Pendleton Fire Department in areas on MCB Camp Pendleton, in areas of fire hazard as determined by the OCFA and the MCB Camp Pendleton Fire Department.

Mitigation Measure PS-9: Fire, Emergency Medical and Law Enforcement. During construction the TCA or the implementing agency/agencies will require the contractor to coordinate all temporary ramp closures and detour plans with fire, emergency medical and law enforcement providers to minimize temporary delays in response times.

Measure PS-10: Law Enforcement. Prior to operation of any build Alternative which crosses MCB Camp Pendleton, the State of California shall solicit a transfer of concurrent legal (law enforcement) jurisdiction from the federal government to the State for any part of an Alternative that crosses MCB Camp Pendleton as provided in Section 2851 of the Fiscal Year 1999 National Defense Authorization Act (H.R. 3616).

Mitigation for Solid Waste

Measure PS-13: Solid Waste. Prior to construction of a build Alternative which will generate excess fill, the contractor will be required to offer fill for use in other development projects or to area landfills as daily cover. Landfilling of excess soil and rock material will be considered the option of last resort.

PS-13A: Solid Waste. Excess fill material from construction will not be disposed of at MCB Camp Pendleton landfills, unless such disposal is approved in advance though mutual agreement with the Environmental Security Department's Solid Waste Branch. If Base agreement for such disposal is granted, the contractor shall be responsible for hauling the materials to the Base landfill(s) and for complying with all Base regulations regarding the transport and disposal of that material on the Base.

Mitigation for Public Facilities

Short term construction impacts and long term operational impacts on public facilities potentially include air, noise and traffic related impacts. Those impacts are analyzed in the EIS/EIR Sections for air, noise and traffic and appropriate mitigation measures are provided in those sections to address these potential adverse impacts of the SOCTIIP Alternatives on public facilities.

Mitigation Measures for Public Utilities

Measure U-1: Utilities. As early as possible during final design, the TCA or other implementing agency/agencies, as appropriate, will consult with each utility provider/owner to avoid or reduce potential impacts on existing and planned utilities through design refinements. Should impacts be unavoidable, all affected facilities shall be relocated or protected in place prior to, during or after construction, as appropriate, and in accordance with the methods and designs approved by the affected utility provider/owner. For utilities located on MCB Camp Pendleton, as early as possible the TCA or other implementing agency/agencies will consult with and receive approval from the Marine Corps on any utility relocations or realignments prior to discussing the proposed activities with utility providers.

Measure U-2:. Temporary Use and Permanent Acquisition. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with utility providers whose facilities will be temporary used and/or permanently acquired to determine appropriate action and/or compensation to mitigate for the temporary use and/or permanent acquisition of their property.

4.21.25 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION FOR RECREATION RESOURCES RELATED TO CAMP PENDLETON

4.21.25.1 Affected Environment for Recreation Resources Related to Camp Pendleton

Table 4.21-38 and Figure 4.21-21 show the existing recreation resources owned or operated by the military in the SOCTIIP study area. Existing recreational resources owned or operated by the military in the study area are one California state park (which includes an existing regional public bicycle trail) on 2,000 acres of MCB Camp Pendleton land leased to the California Department of Parks and Recreation and one military facility (MCB Camp Pendleton San Onofre Recreation Beach). There are no proposed recreation facilities owned or operated by the military in the SOCTIIP study area.

4.21.25.2 Methodology for Recreation Resources Related to Camp Pendleton

The methodology for assessing impacts related to recreation resources are described in detail in Section 4.25.2 (Methodology Related to Recreation Resources).

4.21.25.3 Impacts for Recreation Resources Related to Camp Pendleton

This Section summarizes the potential adverse impacts of the SOCTIIP Alternatives related to the temporary use and permanent acquisition of property, air quality (short term), noise (short term and long term), traffic and visual quality on recreation resources in the study area. For each Alternative, the potentially affected resources and impacts on those resources are identified.

<u>Construction Impacts for Recreation Resources Related to the Military Mission</u>

FEC-W Alternative

As shown in Table 4.21-38 and on Figure 4.21-22, the FEC-W-Initial will result in the temporary occupancy of property from the existing San Onofre State Beach (SOSB) Cristianitos Subunit 1 and SOSB Trestles Subunit 2. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the construction disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. The use of property from these recreation resources will result in adverse effects on amenities at these resources through the removal of open space. Based on the types of amenities removed by the temporary occupancy of property at these recreation resources, the FEC-W-Initial will result in an adverse impact on these resources.

The FEC-W-Ultimate will result in the temporary occupancy of property from the same resources as the FEC-W-Initial. Based on the types of amenities removed by the temporary occupancy of property at these existing and proposed recreation resources, the FEC-W-Ultimate will result in an adverse impact on these resources.

The FEC-W Alternative will fragment SOSB Cristianitos Subunit 1. The FEC-W Alternative will divide SOSB Subunit 1, resulting in a trail from the City of San Clemente being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the FEC-W Alternative includes structures (wildlife crossings and utility maintenance access roads) within SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

As shown on Table 4.21-40, adverse construction noise impacts of the FEC-W Alternative will occur at SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach (The noise assessment refers to this area as the "MCB Camp Pendleton Beach Club/Campground") and SOSB Surfer Beach Subunit 3.

The FEC-W Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment with the exception of SOSB Cristianitos Subunit 1. There may be temporary adverse access impacts to this resource during construction of this Alternative.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including SOSB Cristianitos Subunits 1, SOSB Trestles Subunit 2 and Camp Pendleton San Onofre Recreation Beach. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, resources within 45.7 m (150 ft) of the centerline could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The FEC-W Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

FEC-M Alternative

As shown in Table 4.21-39 and on Figure 4.21-23, the FEC-M-Initial will result in the temporary occupancy of property from the existing San Onofre State Beach (SOSB) Cristianitos Subunit 1 and SOSB Trestles Subunit 2. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines area that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. The use of property from these recreation resources will result in adverse effects on amenities at these resources through the removal of open space. Based on the types of amenities removed by the temporary occupancy of property at these recreation resources, the FEC-M-Initial will result in an adverse impact on these resources.

The FEC-M-Ultimate will result in the temporary occupancy of property from the same resources as the FEC-M-Initial. Based on the types of amenities removed by the temporary occupancy of property at these existing and proposed recreation resources, the FEC-M-Ultimate will result in an adverse impact on these resources.

The FEC-M Alternative will fragment SOSB Cristianitos Subunit 1. The FEC-M Alternative will divide SOSB Subunit 1, resulting in a trail from the City of San Clemente being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the FEC-M Alternative includes structures (wildlife crossings and utility maintenance access roads) within SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

As shown on Table 4.21-40, adverse construction noise impacts of the FEC-M Alternative will occur at SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach (The noise assessment refers to this area as the "MCB Camp Pendleton Beach Club/Campground") and SOSB Surfer Beach Subunit 3.

The FEC-M Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment with the exception of SOSB Cristianitos Subunit 1. There may be temporary adverse access impacts to this resource during construction of this Alternative.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including SOSB Cristianitos Subunits 1, SOSB Trestles Subunit 2 and Camp Pendleton San Onofre Recreation Beach. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, resources within 45.7 m (150 ft) of the centerline could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The FEC-M Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

CC Alternative

As shown in Table 4.21-39 and Figure 4.21-24, the CC-Initial will not result in the temporary occupancy of property from SOSB Cristianitos Subunit 1 beyond that which is permanently acquired. The permanent acquisition of property on SOSB Cristianitos Subunit 1 under this Alternative is for an EDB southeast of Cristianitos Road and east of I-5. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. The use of property from this recreation resource will result in adverse effects on amenities at this resource through the removal of part of a parking lot and open space. Based on the types of amenities removed by the temporary occupancy of property at this resource, the CC-Initial will result in an adverse impact on this resource.

As shown in Table 4.21-39, the CC-Ultimate will not result in the temporary occupancy of property from the SOSB Cristianitos Subunit 1 beyond that which is permanently acquired.

As shown on Table 4.21-40, adverse construction and operation noise impacts of the CC Alternative will occur at SOSB Cristianitos Subunit 1.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including SOSB Cristianitos Subunit 1. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, resources within 45.7 m (150 ft) of the centerline could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The CC Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

A7C-FEC-M Alternative

As shown in Table 4.21-39 and on Figure 4.21-25, the A7C-FEC-M-Initial will result in the temporary occupancy of property from the existing San Onofre State Beach (SOSB) Cristianitos Subunit 1 and SOSB Trestles Subunit 2. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. The use of property from these recreation resources will result in adverse effects on amenities at these resources through the removal of open space. Based on the types of amenities removed by the temporary occupancy of property at these recreation resources, the A7C-FEC-M-Initial will result in an adverse impact on these resources.

The A7C-FEC-M-Ultimate will result in the temporary occupancy of property from the same resources as the A7C-FEC-M-Initial. Based on the types of amenities removed by the temporary occupancy of property at these existing and proposed recreation resources, the A7C-FEC-M-Ultimate will result in an adverse impact on these resources.

The A7C-FEC-M Alternative will fragment SOSB Cristianitos Subunit 1. The A7C-FEC-M Alternative will divide SOSB Subunit 1, resulting in a trail from the City of San Clemente being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the A7C-FEC-M Alternative includes structures (wildlife crossings and utility maintenance access roads) within SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

As shown on Table 4.21-40, adverse construction noise impacts of the A7C-FEC-M Alternative will occur at SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach (The noise assessment refers to this area as the "MCB Camp Pendleton Beach Club/Campground") and SOSB Surfer Beach Subunit 3.

The A7C-FEC-M Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment with the exception of SOSB Cristianitos Subunit 1. There may be temporary adverse access impacts to this resource during construction of this Alternative.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including SOSB Cristianitos Subunits 1, SOSB Trestles Subunit 2 and Camp Pendleton San Onofre Recreation Beach. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, resources within 45.7 m (150 ft) of the centerline could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The A7C-FEC-M Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

I-5 Alternative

As shown in Table 4.21-39 and Figure 4.21-26, the I-5 Alternative will not result in the temporary occupancy of property from SOSB Cristianitos Subunit 1 beyond that which is permanently acquired. The permanent acquisition of property on SOSB Cristianitos Subunit 1 under this Alternative is for an EDB southeast of Cristianitos Road and east of I-5. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. The use of property from this recreation resource will result in adverse effects on amenities at this resource through the removal of part of a parking lot. Based on the types of amenities removed by the temporary occupancy of property at this resource, the I-5 Alternative will result in an adverse impact on this resource.

As shown on Table 4.21-40, adverse construction noise impacts of the I-5 Alternative will occur at SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2. Those impacts will be substantially mitigated based on mitigation measures provided in the Air Quality Technical Report. However, resources within 45.7 meters (150 feet) of the centerline could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The I-5 Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

No Action Alternative - OCP-2000

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any additional SOCTIIP related transportation improvements. Therefore, the No Action Alternative-OCP-2000 will not result in adverse construction impacts to any recreation resources.

No Action Alternative - RMV

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any SOCTIIP related transportation additional improvements. Therefore, the No Action Alternative-RMV will not result in adverse construction impacts to any recreation resources.

Long Term Impacts for Recreation Resources Related to the Military Mission

FEC-W Alternative

As shown in Table 4.21-39 and on Figure 4.21-22, the FEC-W-Initial will result in the permanent acquisition of property from SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2. The use of property from the existing recreation resources will result in adverse effects on amenities at these resources through the removal of open space. Based on the types of amenities removed by the permanent acquisition of property at these existing and proposed recreation resources, the FEC-W-Initial will result in an adverse impact on these resources.

The FEC-W-Ultimate will also result in the permanent acquisition of property from the same resources as the FEC-W-Initial, although the amount of property affected is generally larger.

The FEC-W Alternative will fragment SOSB Cristianitos Subunit 1. The FEC-W Alternative will divide SOSB Subunit 1, resulting in a trail from the City of San Clemente being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the FEC-W Alternative includes structures (wildlife crossings and utility maintenance access roads) SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

As shown on Table 4.21-40, adverse noise impacts due to operation of the FEC-W Alternative will occur at SOSB Cristianitos Subunit 1 and MCB Camp Pendleton San Onofre Recreation Beach.

The FEC-W Alternative will not adversely affect access to and from recreation resources in the long term in the vicinity of the alignment as shown on Table 4.21-40. Permanent access is provided in the design and right-of-way for the FEC-W Alternative to allow access from one side to the other of SOSB Cristianitos Subunit 1.

Operation of the FEC-W Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.21-40, the FEC-W Alternative will result in adverse changes in views from SOSB Cristianitos Subunit 1.

This Alternative will result also in changes in views from SOSB Trestles Subunit 2 and Camp Pendleton San Onofre Recreation Beach. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

FEC-M Alternative

As shown in Table 4.21-39 and on Figure 4.21-23, the FEC-M-Initial will result in the permanent acquisition of property from SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2. The use of property from the existing recreation resources will result in adverse effects on amenities at these resources through the removal of open space. Based on the types of amenities removed by the permanent acquisition of property at these existing and proposed recreation resources, the FEC-M-Initial will result in an adverse impact on these resources.

The FEC-M-Ultimate will also result in the permanent acquisition of property from the same resources as the FEC-M-Initial, although the amount of property affected is generally larger.

The FEC-M Alternative will fragment SOSB Cristianitos Subunit 1. The FEC-M Alternative will divide SOSB Subunit 1, resulting in a trail from the City of San Clemente being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the FEC-M Alternative includes structures (wildlife crossings and utility maintenance access roads) SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

As shown on Table 4.21-40, adverse noise impacts due to operation of the FEC-M Alternative will occur at SOSB Cristianitos Subunit 1 and MCB Camp Pendleton San Onofre Recreation Beach.

The FEC-M Alternative will not adversely affect access to and from recreation resources in the long term in the vicinity of the alignment as shown on Table 4.21-40. Permanent access is provided in the design and right-of-way for the FEC-M Alternative to allow access from one side to the other of SOSB Cristianitos Subunit 1.

Operation of the FEC-M Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.21-40, the FEC-M Alternative will result in adverse changes in views from SOSB Cristianitos Subunit 1.

This Alternative will result also in changes in views from SOSB Trestles Subunit 2 and Camp Pendleton San Onofre Recreation Beach. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

CC Alternative

As shown in Table 4.21-39 and Figure 4.21-24, the CC-Initial will result in the permanent acquisition of property from SOSB Cristianitos Subunit 1. The permanent acquisition of property on SOSB Cristianitos Subunit 1 under this Alternative is for an EDB southeast of Cristianitos Road and east of I-5. The use of property from this recreation resource will result in adverse effects on amenities at this resource through the removal of part of a parking lot. Based on the types of amenities removed by the permanent acquisition of property at this resource, the CC-Initial will result in an adverse impact on this resource.

As shown in Table 4.21-39, the CC-Ultimate will result in the permanent acquisition of property from the same resources as the CC-Initial.

As shown in Table 4.21-39, there are no potential adverse impacts related to the fragmentation of property. As shown in Table 4.21-40, adverse air quality, transportation (access) or visual impacts due to operation of the CC Alternative will not occur at SOSB Cristianitos Subunit 1. However, adverse noise impacts due to operation of the CC Alternative will occur at SOSB Cristianitos Subunit 1.

This Alternative will result in changes in views from SOSB Cristianitos Subunit 1. The change in the views from this resource is not adverse because the views from this resource will not be substantially changed or this resource is not considered to be sensitive to changes in the viewshed.

A7C-FEC-M Alternative

As shown in Table 4.21-39 and on Figure 4.21-25, the A7C-FEC-M-Initial will result in the permanent acquisition of property from SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2. The use of property from the existing recreation resources will result in adverse effects on amenities at these resources through the removal of open space. Based on the types of amenities removed by the permanent acquisition of property at these existing and proposed recreation resources, the A7C-FEC-M-Initial will result in an adverse impact on these resources.

The A7C-FEC-M-Ultimate will also result in the permanent acquisition of property from the same resources as the A7C-FEC-M-Initial, although the amount of property affected is generally larger.

The A7C-FEC-M Alternative will fragment SOSB Cristianitos Subunit 1. The A7C-FEC-M Alternative will divide SOSB Subunit 1, resulting in a trail from the City of San Clemente being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the A7C-FEC-M Alternative includes structures (wildlife crossings and utility maintenance access roads) SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

As shown on Table 4.21-40, adverse noise impacts due to operation of the A7C-FEC-M Alternative will occur at SOSB Cristianitos Subunit 1 and MCB Camp Pendleton San Onofre Recreation Beach.

The A7C-FEC-M Alternative will not adversely affect access to and from recreation resources in the long term in the vicinity of the alignment as shown on Table 4.21-40. Permanent access is provided in the design and right-of-way for the A7C-FEC-M Alternative to allow access from one side to the other of SOSB Cristianitos Subunit 1.

Operation of the A7C-FEC-M Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.21-40, the A7C-FEC-M Alternative will result in adverse changes in views from SOSB Cristianitos Subunit 1.

This Alternative will result also in changes in views from SOSB Trestles Subunit 2 and Camp Pendleton San Onofre Recreation Beach. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

I-5 Alternative

As shown in Table 4.21-39 and Figure 4.21-26, the I-5 Alternative will result in the permanent acquisition of property from SOSB Cristianitos Subunit 1. The permanent acquisition of property on SOSB Cristianitos Subunit 1 under this Alternative is for an EDB southeast of Cristianitos Road and east of I-5. The use of property from this recreation resource will result in adverse effects on amenities at this resource through the removal of part of a parking lot and open space. Based on the types of amenities removed by the permanent acquisition of property at this resource, the I-5 Alternative will result in an adverse impact on this resource.

As shown in Table 4.21-39, there are no potential adverse impacts related to the fragmentation of property. As shown in Table 4.21-40, there are no potential adverse impacts related to air quality (long term), noise (long term), traffic or visual quality on recreation resources related to the military mission by the I-5 Alternative.

The I-5 Alternative will result in changes in views for SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed compared to existing conditions in the viewshed.

No Action Alternatives

The No Action Alternatives do not assume any SOCTIIP improvements in or near Camp Pendleton or SOSB. Therefore, these No Action Alternatives will not result in adverse long term impacts to any recreation resources at SOSB or Camp Pendleton.

4.21.25.4 Mitigation for Recreation Resources Related to Camp Pendleton

The following mitigation measures were developed to avoid or minimize as much as possible the impacts of the SOCTIIP Alternatives related to recreation resources. In addition, Sections 4.6 (Affected Environment, Impacts and Mitigation Related to Noise) and 4.18 (Affected Environment, Impacts and Mitigation Related to Aesthetics) include mitigation to address noise and visual impacts along the alignments of the build Alternatives. Those mitigation measures would mitigate adverse impacts of the build Alternatives related to noise and visual impacts. As described in the Section 4.6, short term noise impacts may not be fully mitigated to within the applicable local jurisdictions' noise standards for construction. However, long term noise impacts associated with operation of the build Alternatives are anticipated to be mitigated to within the applicable federal and local standards. As documented in the Section 4.18, not all the adverse visual impacts associated with the build Alternatives, including impacts on recreation resources can be fully mitigated. Mitigation measures in Sections 4.6 and 4.18 would substantially mitigate potential adverse noise and visual impacts recreation resources. Additionally, short term air quality mitigation measures as noted in Section 4.7 will mitigate the air quality construction impacts; however, those impacts will likely remain adverse even with the application of the mitigation measures.

Measure R-1: Avoidance of the Temporary Occupancy and/or Permanent Acquisition of Recreation Resources Property. During final design, the TCA or the implementing agency/agencies will refine the design to the extent feasible based on engineering judgment and design standards to avoid or minimize the temporary occupancy during construction and the permanent acquisition of land currently occupied by or proposed for use by recreation resources. In the event that the temporary occupancy or permanent acquisition of this property cannot be avoided through design refinements, other mitigation measures identified for the compensation of temporary and permanent use of recreation resources property will apply to the build Alternatives consistent with Uniform Relocation Assistance.

Measure R-2: Consultation with Owners/Operators of Recreation Resources. In conjunction with measures R-3 and R-4 (compliance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, refer to Section 4.6), the TCA or implementing agency/agencies will consult with the affected property owner/operator of recreation resources temporarily used or permanently acquired by a build Alternative. The purposes of this consultation will be to:

- Identify and implement opportunities to protect recreation resources in place.
- Identify and implement opportunities to replace lost recreation facilities within the existing recreation property.
- Combine compensation and protection/modification of affected recreation resources to comply with the Uniform Relocation Assistance Act and minimize adverse impacts on recreation resources.

Measure R-3: Direct Permanent Impacts (Property Acquisition) at Recreation Resources. Consistent with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or implementing agency/agencies will negotiate with

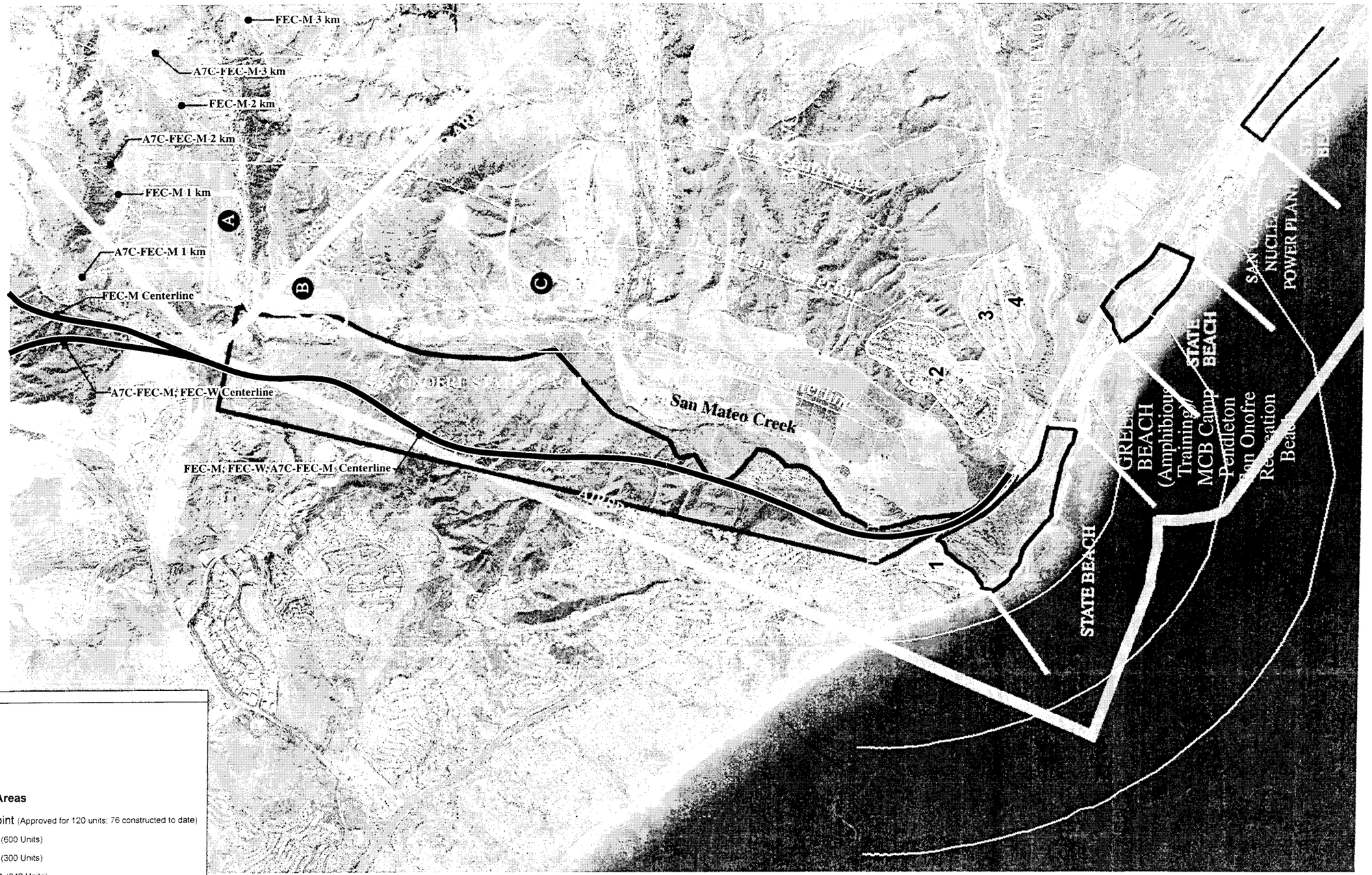
the owner/operator whose recreation facilities will be permanently acquired to determine appropriate action and/or compensation to mitigate for the permanent acquisition.

Measure R-4: Direct Temporary Impacts (Occupancy of Property During Construction) on Recreation Resources. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or implementing agency/agencies will negotiate with the owner/operator whose recreation facilities will be temporarily occupied during construction to determine appropriate action and or compensation to mitigate for the temporary occupancy.

Measure R-5: Impacts on Trails. During final design, the TCA or implementing agency/agencies will provide for crossings of planned lateral Class I and existing and planned Class II bicycle trails, as well as hiking and equestrian trails at master planned locations across the road alignments. These trail crossings will be designed and constructed according to the standards of Caltrans and the applicable local jurisdictions. Construction plans will include directions to contractors related to minimizing potential disruptions to existing bicycle, riding and hiking trails during construction, as feasible.

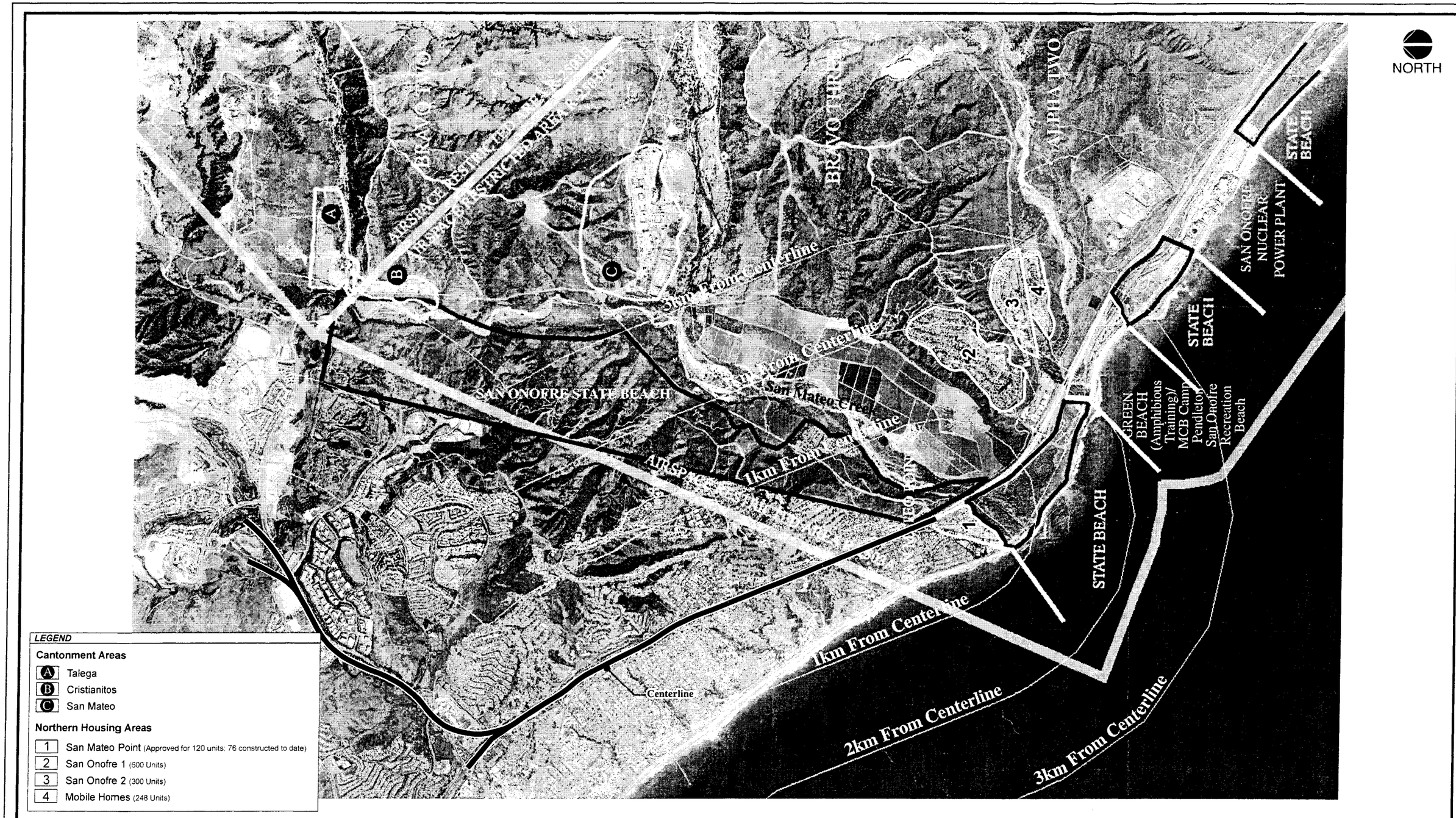
Tables 4.21-41 to 4.21-44 list the project Alternatives, the resources along the alternatives and which mitigation measures apply to potential impacts on those resources under each Alternative.

The TCA or other agencies implementing a SOCTIIP Alternative (because the TCA will not be the implementing agency for the non-corridor Alternatives) will comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property within the right-of-way necessary for the proposed project. The provisions of this Act, as well as mitigation measures related to temporary use and permanent acquisition of property, are addressed in detail in Section 4.4 (Affected Environment, Impacts and Mitigation Related to Socioeconomics and Environmental Justice).



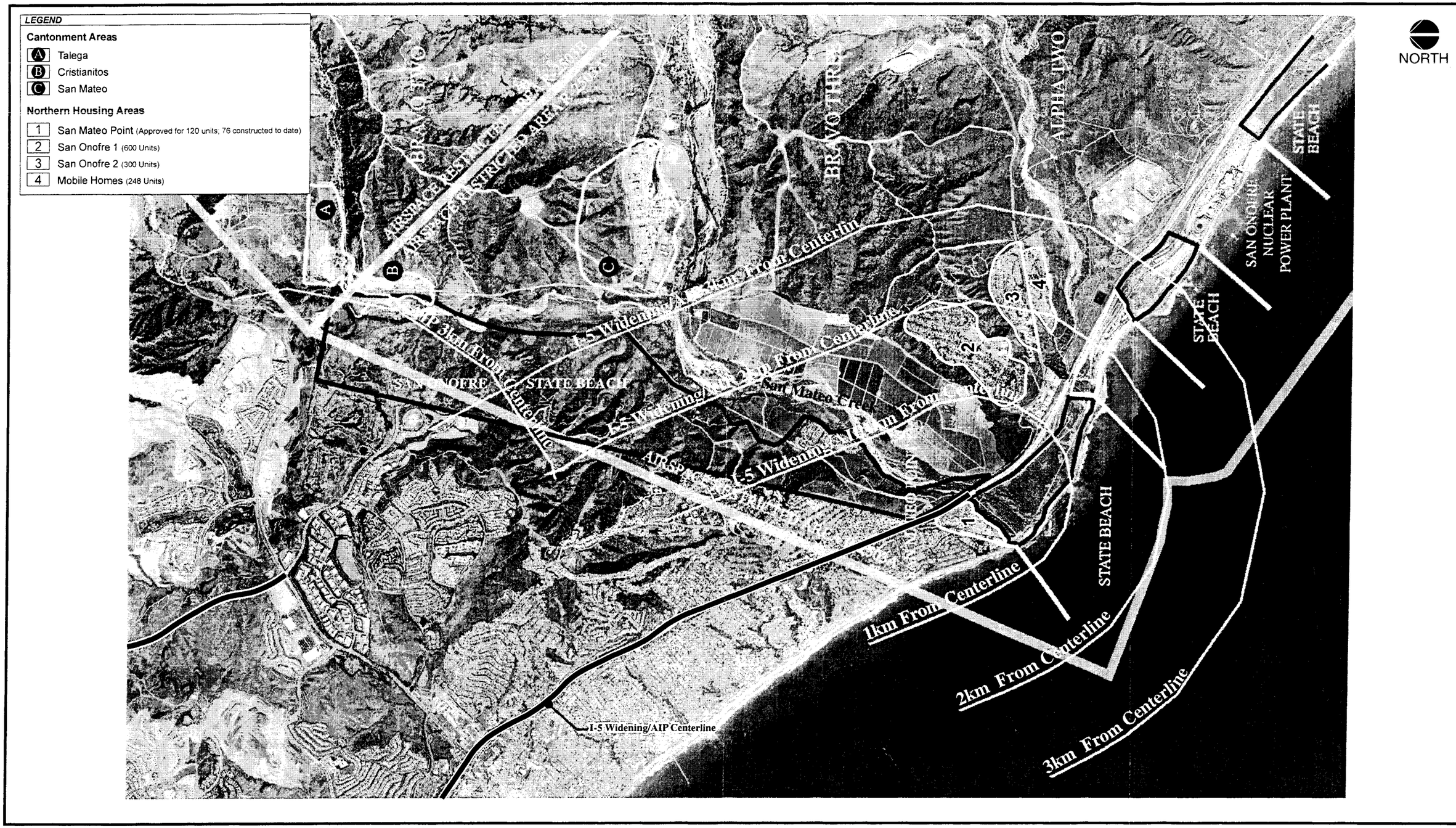
Source: Camp Pendleton Special, series V895s, Edition 2-DMA and P&D Consultants (2003).

Study Area for Military Impacts for the FEC-M, FEC-W and A7C-FEC-M Alternatives



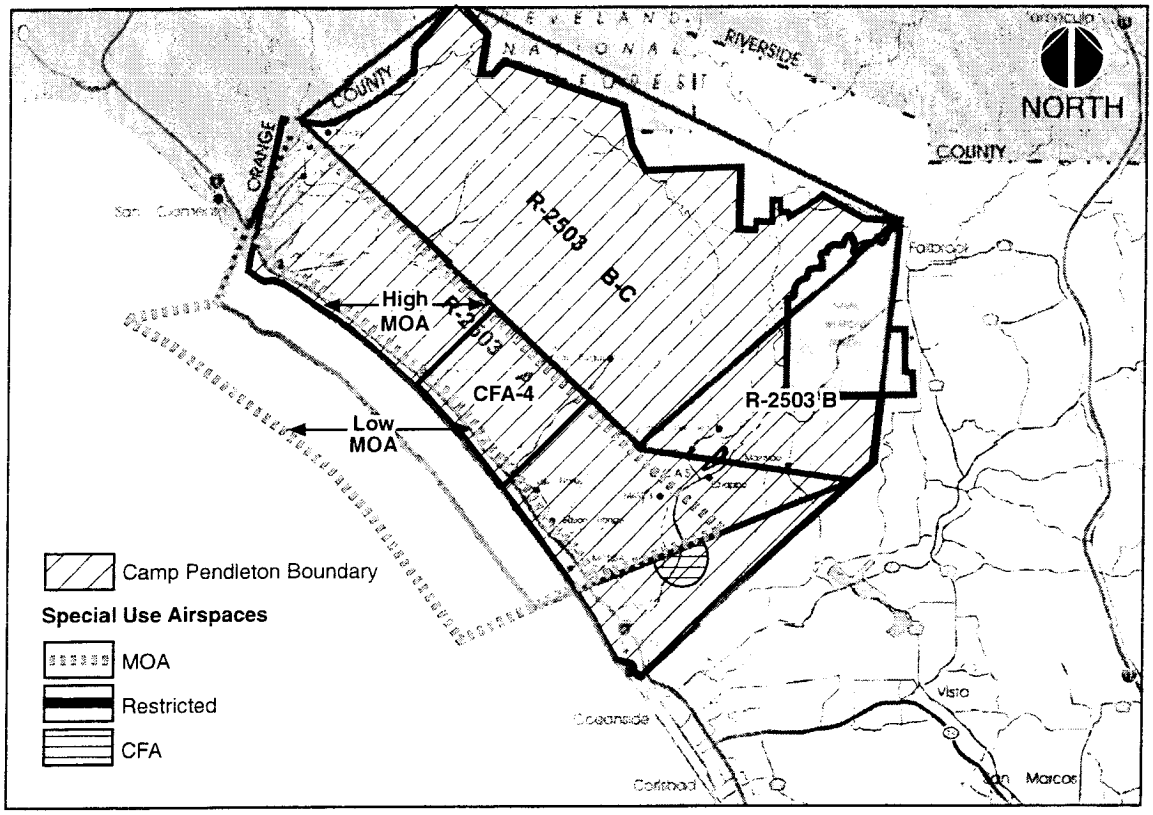
Source: Camp Pendleton Special, series V895s, Edition 2-DMA and P&D Consultants (2003).

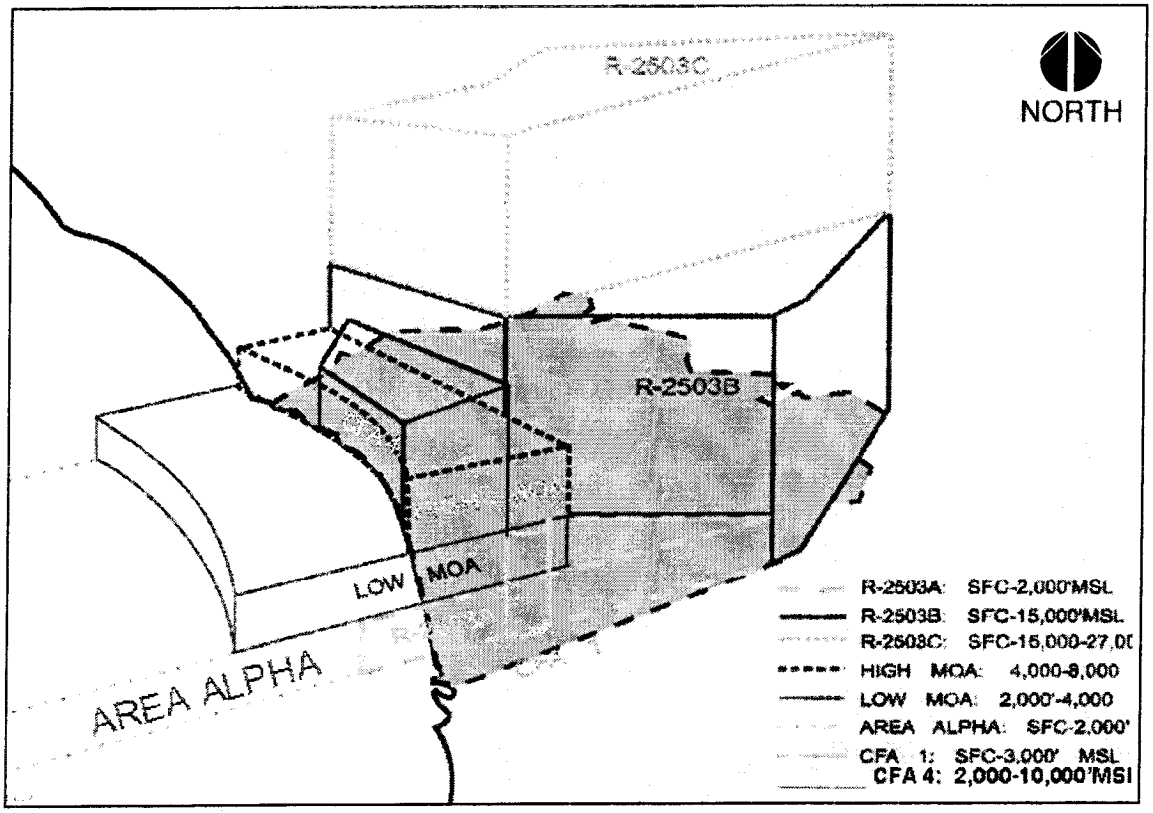
Study Area for Military Impacts for the CC Alternative



Source: Camp Pendleton Special, series V895s, Edition 2-DMA and P&D Consultants (2003).

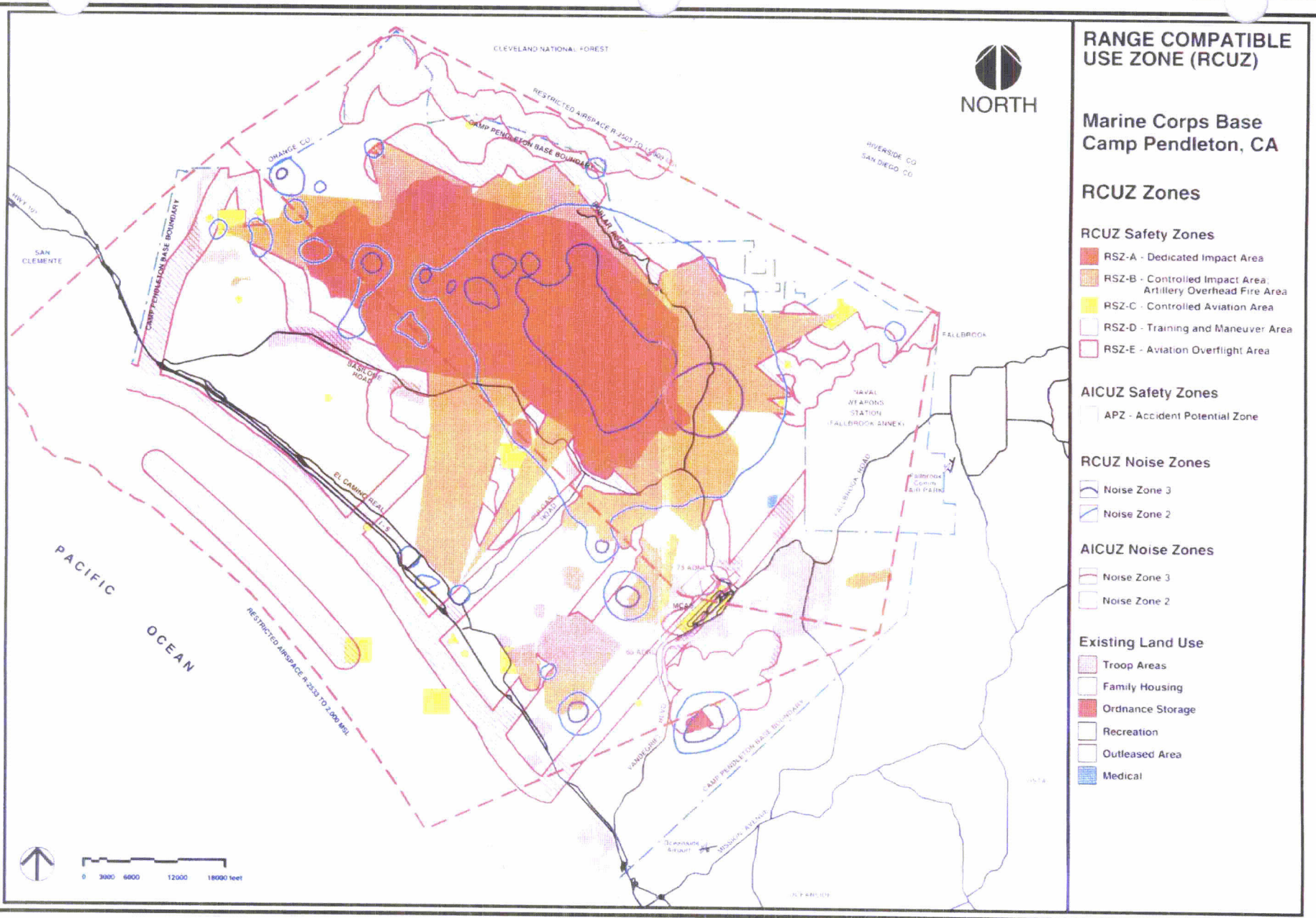
Study Area for Military Impacts for the I-5 Alternative





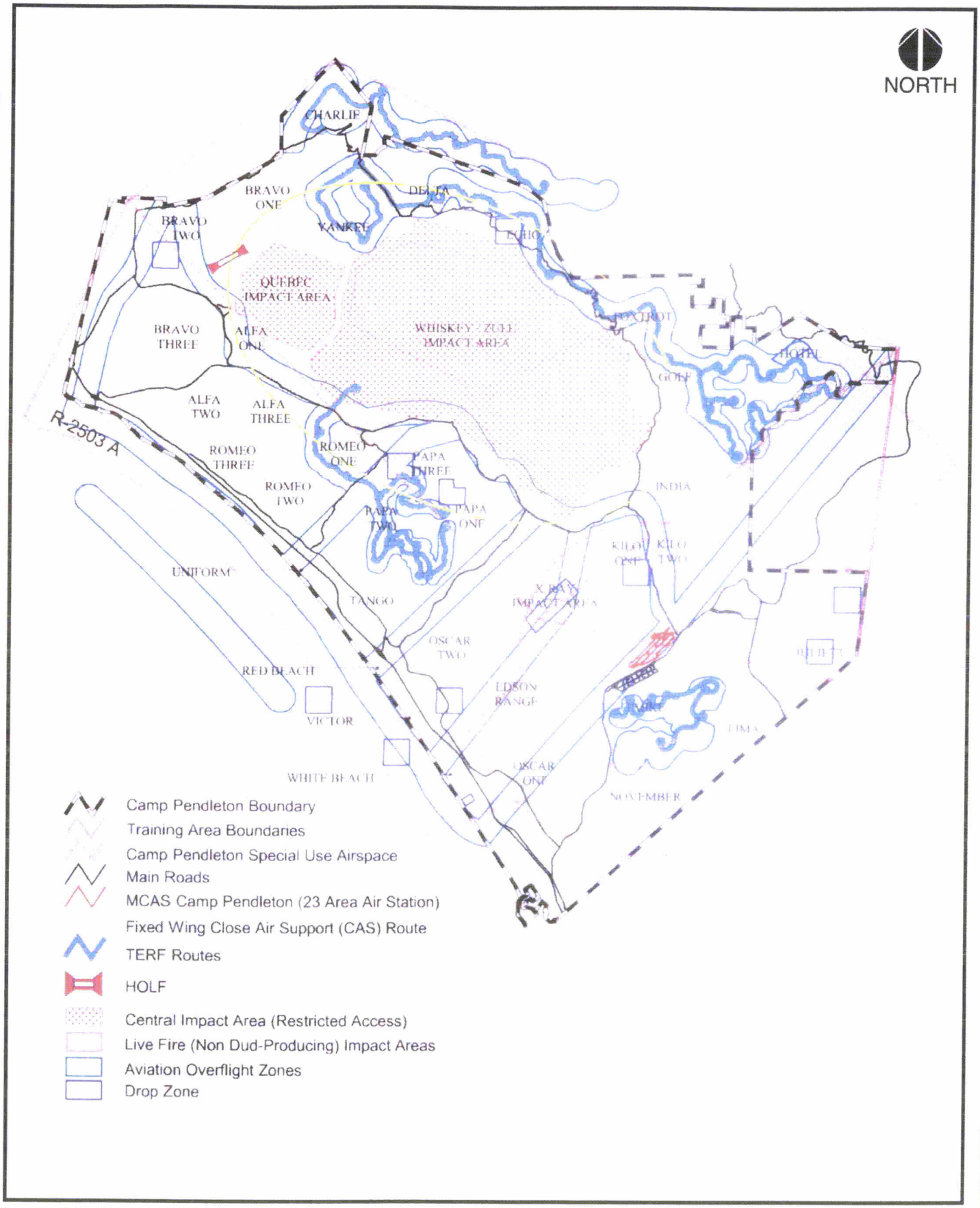
Source: MCB Camp Pendleton (2002).

Special Use Airspace at Camp Pendleton



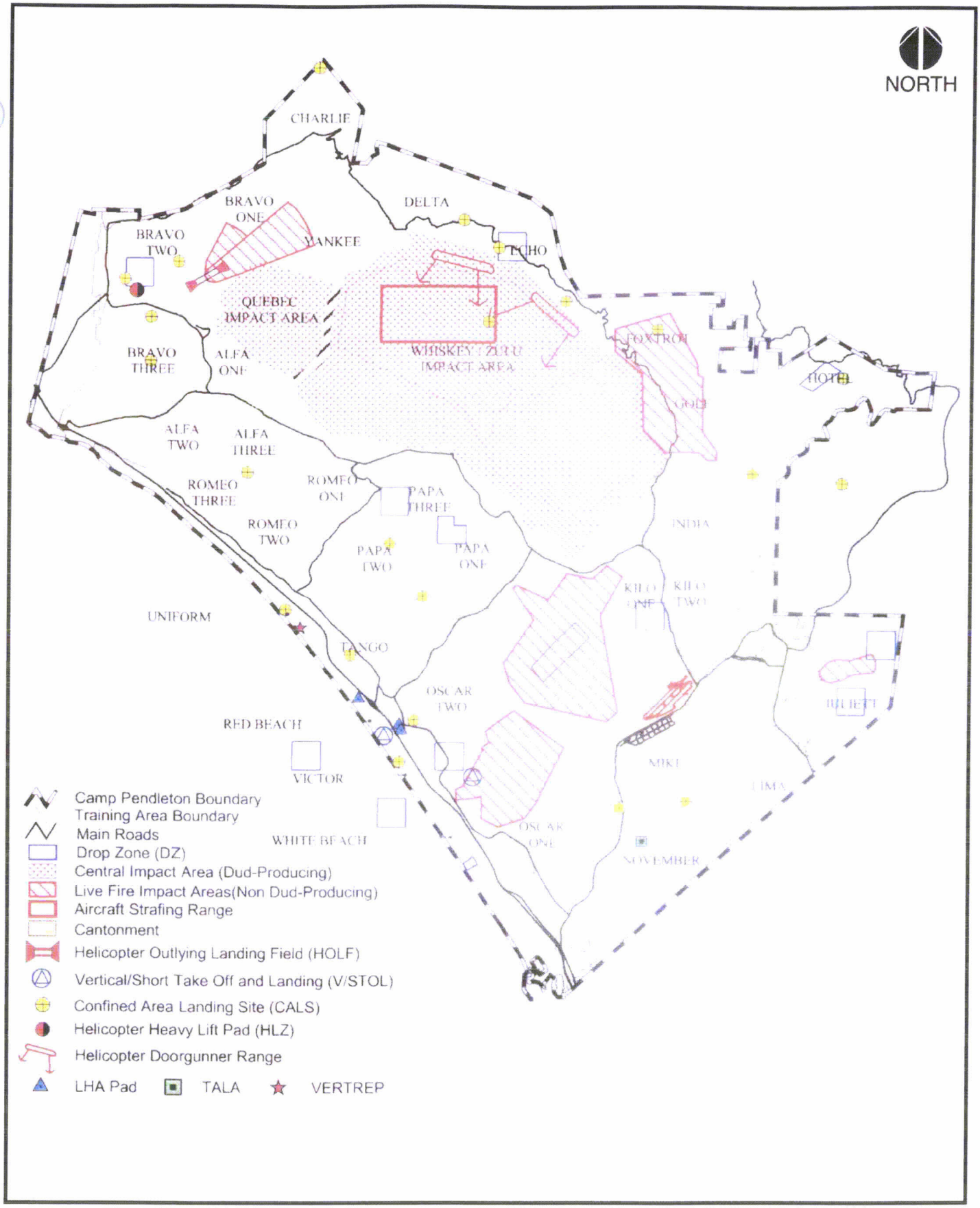
Source: Range Compatible Use Zone Program Corps Base Camp Pendelton (August, 1993).

RCUZ at Camp Pendleton



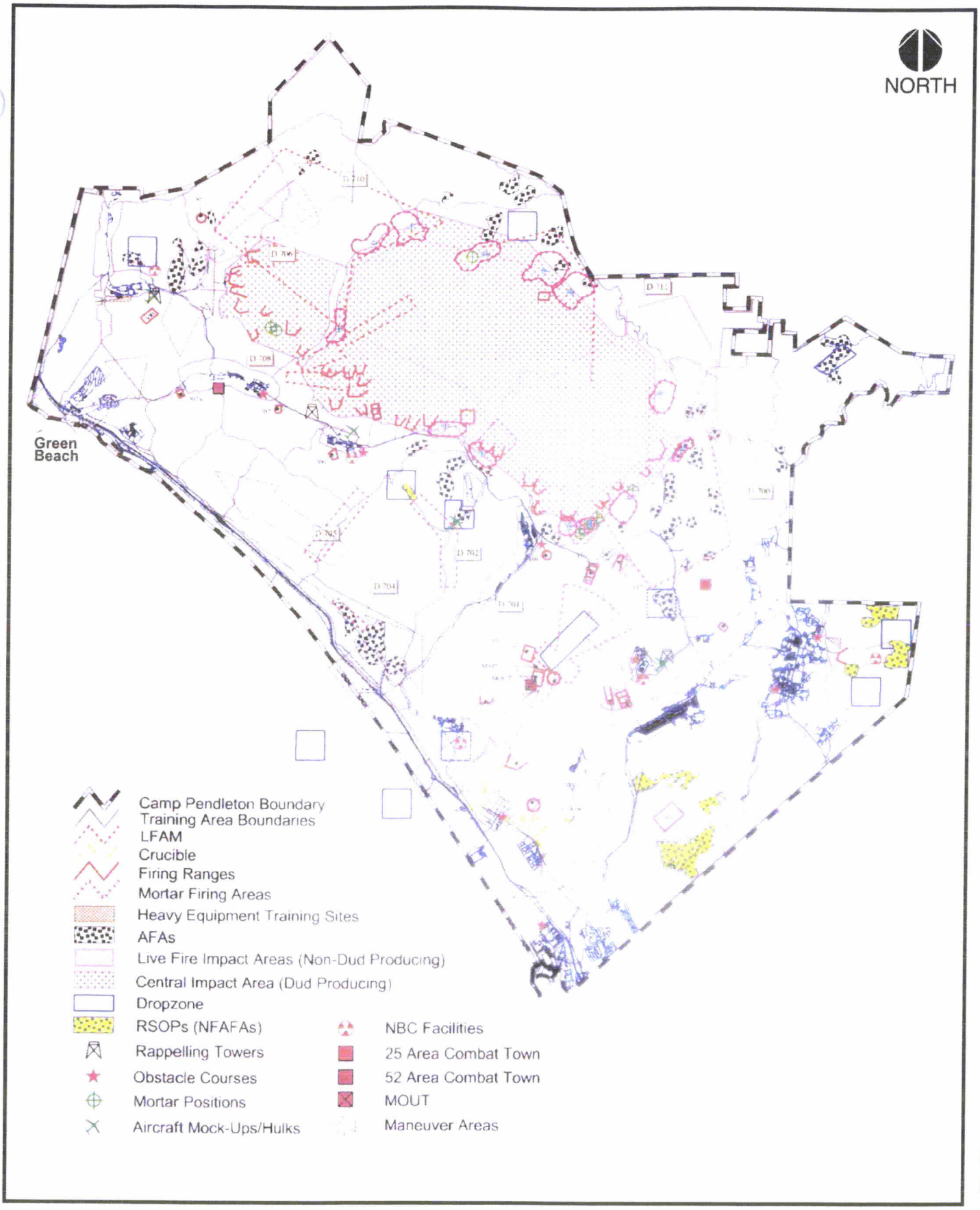
Source: MCB Camp Pendleton Master INRMP, Fig 2-5 (October 2001).

Aviation Operations (Airspace)



Source: MCB Camp Pendleton Master INRMP, Fig 2-6 (October 2001).

Aviation Operations (Facilities)



Source: MCB Camp Pendleton Master INRMP, Fig 2-4 (October 2001).

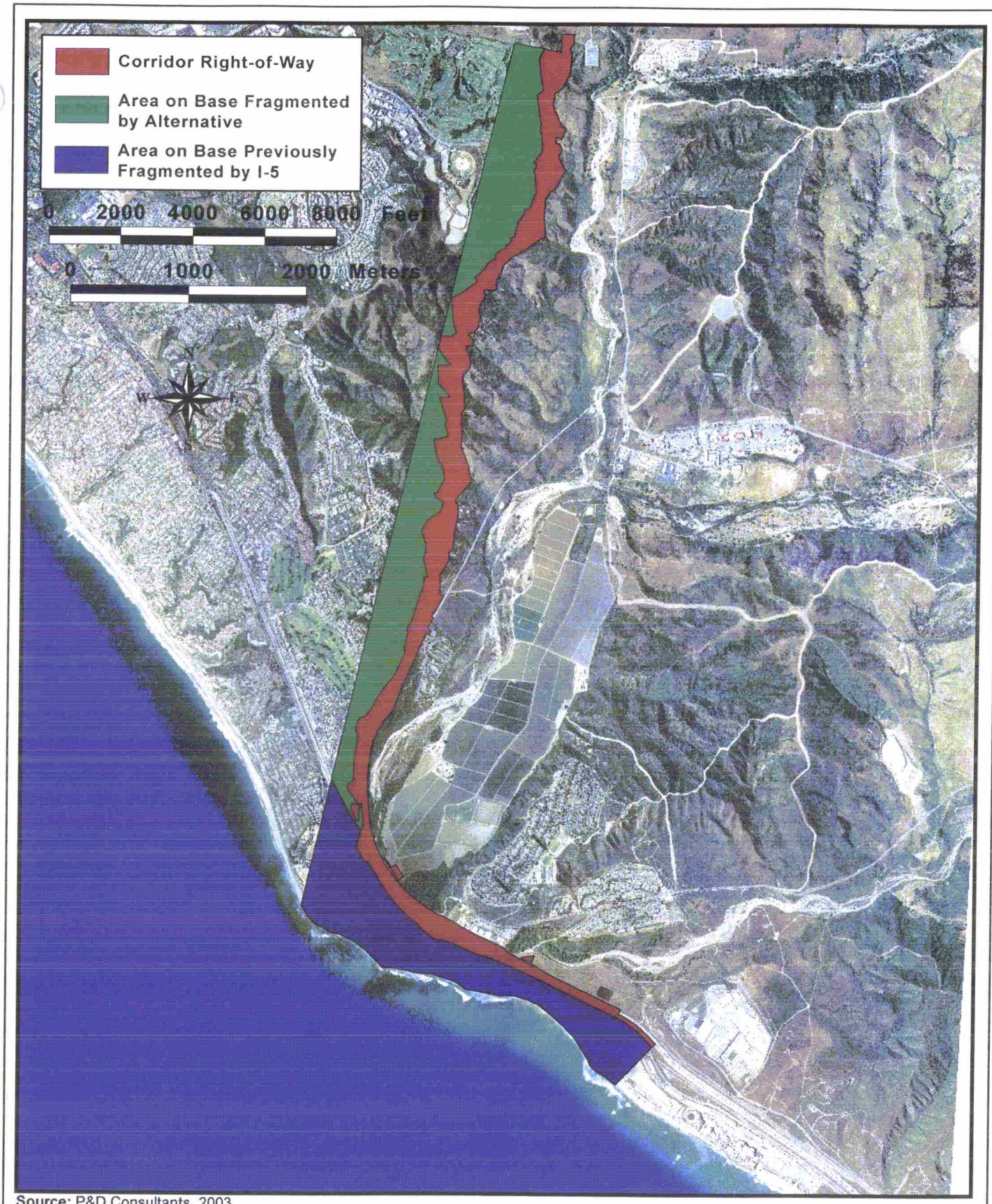
Ground Training Operations Areas

TABLE 4.21-1
SUMMARY OF THE ENCROACHMENTS IMPACTS
ON MCB CAMP PENDLETON (in acres)

	Construction Area for Alternative (1)	Area for Alternative (2)	Area Segmented from Base (3)	Total Area Affected (4)
	Acres	Acres	Acres	Acres
FEC-W-I	489.9	395.1	426.5	821.6
FEC-W-U	509.2	410.7	418.9	829.6
FEC-M-I	489.6	395.1	426.6	821.7
FEC-M-U	509.2	410.0	418.9	828.9
A7C-FEC-M-I	489.7	395.1	426.6	821.7
A7C-FEC-M-U	509.2	410.7	418.9	829.6

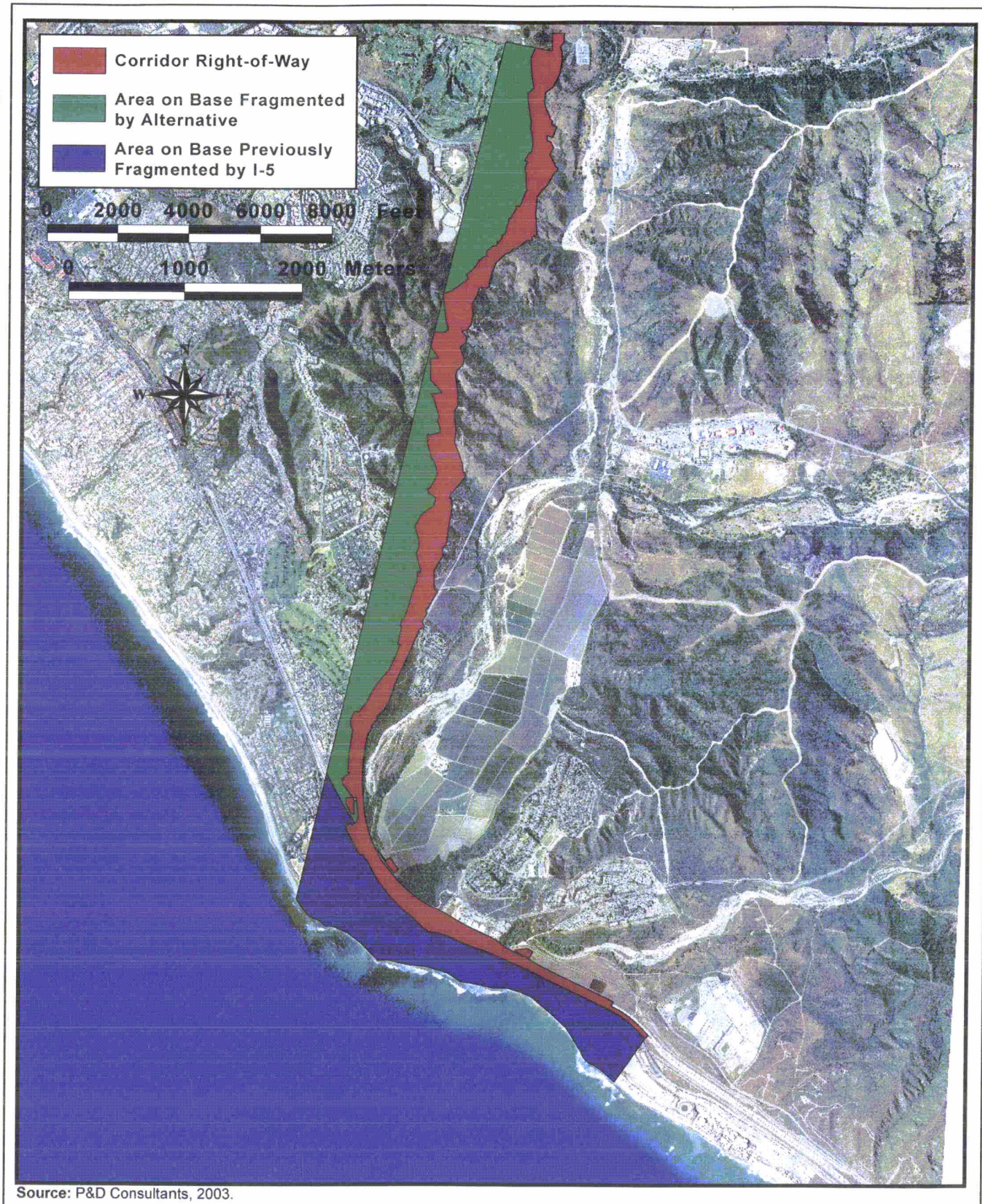
I=Initial
U=Ultimate
(1) Area on the Base that would be disturbed during construction of the SOCTIIP Alternative.
(2) Area on the Base that would be occupied by the SOCTIIP Alternative when built.
(3) Area on the Base that would be permanently segmented from the Base by the SOCTIIP Alternative.
(4) Total area on Base affected by the SOCTIIP Alternative (area occupied by SOCTIIP Alternative plus permanently segmented area).

Source: P&D Consultants (2003).



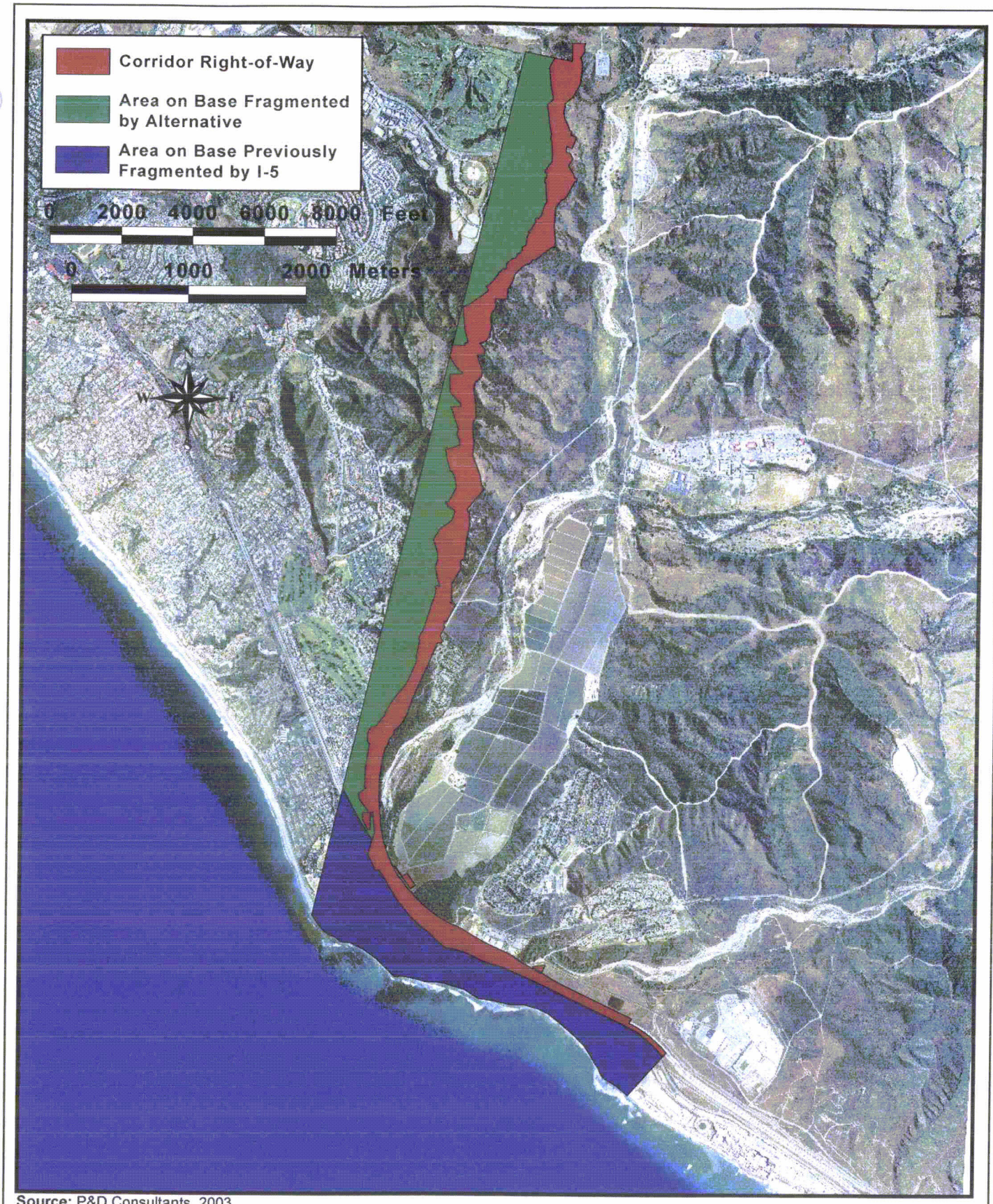
Source: P&D Consultants, 2003.

Areas on Camp Pendleton Affected by the FEC-M-Initial and FEC-W-Initial



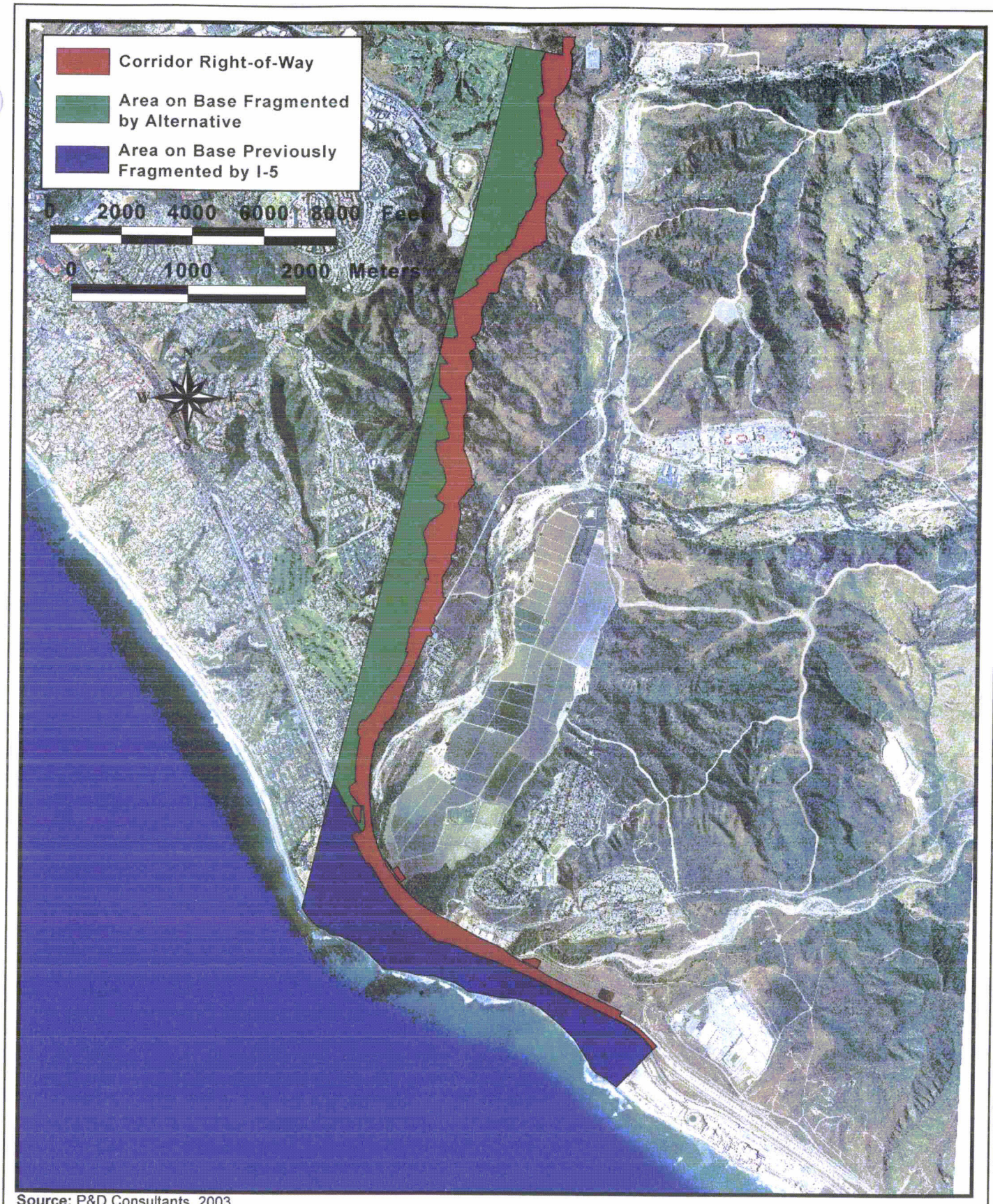
Source: P&D Consultants, 2003.

Areas on Camp Pendleton Affected by the FEC-M-Ultimate and FEC-W-Ultimate



Source: P&D Consultants, 2003.

Areas on Camp Pendleton Affected by the A7C-FEC-M-Initial



Source: P&D Consultants, 2003.

Areas on Camp Pendleton Affected by the A7C-FEC-M-Ultimate

Source: Camp Pendleton Special, series V895s, Edition 2-DMA and P&D Consultants (2003).

Impacts of the I-5 Widening Alternative on Camp Pendleton

TABLE 4.21-2
SUMMARY OF ADVERSE IMPACTS TO THE MILITARY TRAINING MISSION FOR THE BUILD ALTERNATIVES

Type of Impact	Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives	Impacts of the CC Alternative	Impacts of the I-5 Alternative
Special Use Airspace	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.
	Long term: No adverse impacts.	Long term: No impacts.	Long term: No impacts.
Aviation Training Activities	Short term: Construction activities and lighting cause some degradation of low level night flight and night vision goggle training. Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	Short term: Construction activities and lighting cause some degradation of low level night flight and night vision goggle training. Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	Short term: Construction activities and lighting cause some degradation of low level night flight and night vision goggle training. Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.
	Long term: Increased lighting from road and vehicles could cause some degradation of low level night flight and night vision goggle training. Adverse.	Long term: No impacts.	Long term: No impacts.
Ground and Amphibious Training	Short term: Construction activities interfere with potential future training routes. These Alternatives will result in the following losses of land available for training during construction. Adverse. FEC-W-I: 179.2 ha (442.8 ac) FEC-W-U: 189.4 ha (468.0 ac) FEC-M-I: 179.2 ha (442.8 ac) FEC-M-U: 189.4 ha (468.0 ac) A7C-FEC-M-I: 179.2 ha (442.8 ac) A7C-FEC-M-U: 189.4 ha (468.0 ac)	Short term: No adverse impacts.	Short term: Loss of 2.4 hectares (5.9 acres) of land for the I-5 Alternative immediately adjacent to I-5. Not adverse.
	Long term: Permanent loss of land available for training. Adverse. FEC-W-I: 332.8 ha (822.5 ac) FEC-W-U: 335.9 ha (830.0 ac) FEC-M-I: 332.8 ha (822.5 ac) FEC-M-U: 335.9 ha (830.0 ac) A7C-FEC-M-I: 332.8 ha (822.5 ac) A7C-FEC-M-U: 335.9 ha (830.0 ac)	Long term: No adverse impacts.	Long term: Permanent loss of 7.2 hectares (17.7 acres) of land for the AIP Alternative and 2.4 hectares (5.9 acres) of land for the I-5 Alternative immediately adjacent to I-5. Not adverse.

TABLE 4.21-2
SUMMARY OF ADVERSE IMPACTS TO THE MILITARY TRAINING MISSION FOR THE BUILD ALTERNATIVES

Type of Impact	Impacts of the FEC-W, FEC-M and A7C-FEC-M Alternatives	Impacts of the CC Alternative	Impacts of the I-5 Alternative
Security	Short term: Increased potential for unauthorized access to the Base. Adverse.	Short term: Increased potential for unauthorized access to the Base. Adverse.	Short term: Increased potential for unauthorized access to the Base. Adverse.
	Long term: Increased potential for authorized access to the Base. Adverse.	Long term: No impacts.	Long term: No impacts.

Source: P&D Consultants (2003).

TABLE 4.21-3
COMPARISON OF IMPACTS TO AGRICULTURAL RESOURCE AREAS ON CAMP PENDLETON FOR THE BUILD ALTERNATIVES
(hectares/acres)

	Natural Resources Conservation Service Resources			
	Prime	**Unique**	**Statewide**	**Total**
Initial				
FEC-M-I	0 / 0	0 / 0	2.9/7.1	2.9/7.1
FEC-W-I	0 / 0	0 / 0	2.9/7.1	2.9/7.1
CC-I	0 / 0	0 / 0	0 / 0	0 / 0
A7C-FEC-M-I	0 / 0	0 / 0	2.9/7.1	2.9/7.1
Ultimate				
FEC-W-U	0 / 0	0 / 0	2.9/7.3	2.9/7.3
FEC-M-U	0/0	0 / 0	2.9/7.3	2.9/7.3
CC-U	0 / 0	0 / 0	0/0	0/0
A7C-FEC-M-U	0/0	0/0	2.9/7.3	2.9/7.3
Non Corridor Alternative				
I-5	0 / 0	0 / 0	0 / 0	0 / 0

Source: P&D Consultants (2003).

TABLE 4.21-4
NOISE RECEPTORS ON CAMP PENDLETON AND ALTERNATIVES ASSESSED

			Alternatives			
Receptor ID	Description	Land Use	FEC-W	FEC-M	A7C-FEC-M	I-5
001	MCBCP beach club/campground	Campground		•		
002	MCBCP San Onofre Mobile Home Park	Residential		•		
003	MCBCP San Onofre Child Development Center	School		•		
004	MCBCP San Onofre I residence	Residential		•		
005	MCBCP San Onofre II residence	Residential		•		
007	MCBCP San Mateo Point	Residential	•		•	•
009	San Mateo campground, space #143	Campground	•	•	•	
013	MCB Camp Pendleton Camp Talega	Residential	•	•	•	

Note: • indicates that noise levels at that receptor will be assessed for that Alternative.
Source: Mestre Greve Associates (2003)

TABLE 4.21-5
NOISE MEASUREMENT RESULTS ON CAMP PENDLETON

ID	Description	Land Use	Date	Leq (dBA)	Date	Leq (dBA)
001	MCB Camp Pendleton beach club/campground	Campground	3-June-03	TBP	3-June-03	TBP
003	MCB Camp Pendleton San Onofre Child Development Center	School	3-June-03	70	3-June-03	71
004	MCB Camp Pendleton San Onofre I residence	Residential	14-Aug-01	58	14-Aug-01	59
007	MCB Camp Pendleton San Mateo Point	Residential	14-Aug-01	61	14-Aug-01	62
009	San Mateo campground, space #143	Campground	13-Jul-01	47	17-Jul-01	47
013	MCB Camp Pendleton Camp Talega	Campground	14-Aug-01	58	14-Aug-01	53

Source: Mestre Greve Associates (2003).

TABLE 4.21-6
EXISTING PEAK NOISE HOUR TRAFFIC NOISE LEVELS

Receptor ID	Description	Existing Leq(H) dBA	Activity Category[1]	NAC
001	MCB Camp Pendleton beach club/campground	65	B	67
002	MCB Camp Pendleton San Onofre MHP	60	B	67
003	MCB Camp Pendleton San Onofre Child Development Center	***66***	B	67
004	MCB Camp Pendleton San Onofre I residence	61	B	67
005	MCB Camp Pendleton San Onofre II residence	59	B	67
007	MCB Camp Pendleton San Mateo Point	***66***	B	67

Source: Mestre Greve Associates (2003).

TABLE 4.21-7
DISTANCES FOR PEAK NOISE LEVELS FOR PILE DRIVING OPERATIONS

Level at 15 m (50')	65 dBA	70 dBA	75 dBA	80 dBA
100 dBA	850 m	500 m	250 m	150 m
	(2800')	(1600')	(900')	(500')

Source: Mestre Greve Associates (2003).

TABLE 4.21-8
DISTANCES FOR VARIOUS AVERAGE NOISE LEVELS (L50%) FOR HEAVY GRADING OPERATIONS

Level at 15 m (50')	50 dBA	55 dBA	60 dBA	65 dBA
90 dBA	1500 m	900 m	500 m	300 m
	(5000')	(2800')	(1600')	(1000')

Source: Mestre Greve Associates (2003).

TABLE 4.21-9
DISTANCES FOR VARIOUS AVERAGE NOISE LEVELS (L50%) FOR GENERAL CONSTRUCTION

Level at 15 m (50')	50 dBA	55 dBA	60 dBA	65 dBA
75 dBA	275 m	150 m	90 m	50 m
	(900')	(500')	(300')	(150')

Source: Mestre Greve Associates (2003).

TABLE 4.21-10
DISTANCES FOR PEAK NOISE LEVELS FOR DEMOLITION OPERATIONS

Level at 15 m (50')	60 dBA	65 dBA	70 dBA	75 dBA
95 dBA	850 m	500 m	250 m	150 m
	(2800')	(1600')	(900')	(500')

Source: Mestre Greve Associates (2003).

TABLE 4.21-11
CONSTRUCTION NOISE IMPACTS ON CAMP PENDLETON SUMMARY

	Construction In All Areas Except San Clemente				
Alt. [1]	Will Pile Driving Impacts Occur Within 850 m (2,800 ft)?	Will Heavy Grading Impacts Occur Within 1,500 m (5,000 ft)?	Will General Construction Impacts Occur Within 275 m (900 ft)?	Will Haul Route Use Have The Potential To Cause Impacts?	Will Nighttime Demolition Cause Noise Impacts?
FEC-W	Night.	Night.	Night.	Possible	No.
FEC-M	Night.	Night.	Night.	Possible	No.
CC[5]	No.	No.	No.	No.	No.
A7C-FEC-M	No.	Night.	Night.	Possible	No.
I-5	Night.	Night.	Night.	Possible	Yes

Notes:
1. The potential for construction noise impacts is the same for the Initial and Ultimate Corridor Alternatives.
2. Night. Impacts would only occur if night or weekend construction was necessary and there are sensitive uses within the distance indicated in the column heading.
3. Possible. Haul routes impacts are possible depending on the routes, number of trucks and adjacent land uses.
4. Yes. Impacts are definitely projected for this category of construction noise.
5. Construction noise generated from these Alternatives would occur and primarily be controlled by the City of San Clemente, as the impact would occur in the City limits.

Source: Mestre Greve Associates (2003).

TABLE 4.21-12
FAR EAST CORRIDOR ULTIMATES PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]				
			Existing	FEC-W		FEC-M	
001	B	67	65	**70**	**(5)**	**70**	**(5)**
002	B	67	60	63	(3)	63	(3)
003	B	67	66	**74**	**(8)**	**74**	**(8)**
004	B	67	61	64	(3)	64	(3)
005	B	67	59	61	(2)	61	(2)
007	B	67	66	**71**	**(5)**	**71**	**(5)**
009	B	67	47	**62**	**(15)**	**62**	**(15)**
013	B	67	53	57	(4)	57	(4)

1. Numbers in parentheses show increase over existing conditions with Alternative.
Bolded numbers show traffic noise impacts.
--: Receptor not in vicinity of Alternative.
Source: Mestre Greve Associates (2003).

TABLE 4.21-13
FAR EAST CORRIDOR INITIALS PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]				
			Existing	FEC-W		FEC-M	
001	B	67	65	**70**	**(5)**	**70**	**(5)**
002	B	67	60	63	(3)	63	(3)
003	B	67	66	**74**	**(8)**	**74**	**(8)**
004	B	67	61	64	(3)	64	(3)
005	B	67	59	61	(2)	61	(2)
007	B	67	66	**71**	**(5)**	**71**	**(5)**
009	B	67	47	**60**	**(13)**	**60**	**(13)**
013	B	67	53	54	(1)	54	(1)

1. Numbers in parentheses show increase over existing conditions with Alternative.
Bolded numbers show traffic noise impacts.
--: Receptor not in vicinity of Alternative.
Source: Mestre Greve Associates (2003).

TABLE 4.21-14
CENTRAL CORRIDOR-COMPLETE- ULTIMATE PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]		
			Existing	CC	
001	B	67	65	--	--
002	B	67	60	--	--
003	B	67	66	--	--
004	B	67	61	--	--
005	B	67	59	--	--
007	B	67	66	--	--
009	B	67	47	--	--
013	B	67	53	--	--

TABLE 4.21-15
CENTRAL CORRIDOR-COMPLETE- INITIAL PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]		
			Existing	CC	
001	B	67	65	--	--
002	B	67	60	--	--
003	B	67	66	--	--
004	B	67	61	--	--
005	B	67	59	--	--
007	B	67	66	--	--
009	B	67	47	--	--
013	B	67	53	--	--

TABLE 4.21-16
ALIGNMENT 7 CORRIDOR-FAR EAST CROSSOVER-MODIFIED-ULTIMATE E
PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]		
			Existing	A7C-FEC-M	
001	B	67	65	**70**	**(5)**
002	B	67	60	63	(3)
003	B	67	66	**74**	**(8)**
004	B	67	61	64	(3)
005	B	67	59	61	(2)
007	B	67	66	**71**	**(5)**
009	B	67	47	**62**	**(15)**
013	B	67	53	57	(4)

1. Numbers in parentheses show increase over existing conditions with Alternative. **Bolded** numbers show traffic noise impacts.

--: Receptor not in vicinity of Alternative.

Source: Mestre Greve Associates (2003).

TABLE 4.21-17
ALIGNMENT 7 CORRIDOR-FAR EAST CROSSOVER-MODIFIED-INITIAL PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]		
			Existing	A7C-FEC-M	
001	B	67	65	**70**	**(5)**
002	B	67	60	63	(3)
003	B	67	66	**74**	**(8)**
004	B	67	61	64	(3)
005	B	67	59	61	(2)
007	B	67	66	**71**	**(5)**
009	B	67	47	**60**	**(13)**
013	B	67	53	54	(1)

1. Numbers in parentheses show increase over existing conditions with Alternative. **Bolded** numbers show traffic noise impacts.
--: Receptor not in vicinity of Alternative.
T: Site is taken by Alternative.
Source: Mestre Greve (2003).

TABLE 4.21-18
NON-CORRIDOR ALTERNATIVE PREDICTED TRAFFIC NOISE IMPACTS

Receptor ID	Activity Category	NAC	Modeled Peak Hour Noise Level (dBA Leq(h)) and Change Over Existing[1]		
			Existing	I-5	
007	B	67	66	**67**	**(1)**

1. Numbers in parentheses show increase over existing conditions with Alternative. **Bolded** numbers show traffic noise impacts.
--: Receptor not in vicinity of Alternative.
Source: Mestre Greve Associates (2003).

TABLE 4.21-19
SUMMARY OF ON-SITE NOISE IMPACTS ON CAMP PENDLETON

	FEC-W	FEC-M	CC	A7C-FEC-M	I-5	No Action[3]	No Action[4]
# Res. Impctd[5]	1	1	0	1	1	0	0
# Bus. Impctd[5]	0	0	0	0	0	0	0
# Schools Impctd[5]	1	1	0	1	0	0	0
# Parks Impctd[5]	2	2	0	2	0	0	0
Approximate Cost of Noise Abatement Walls (Millions)[1]							
Initial Alt.	2.30	2.30	7.12	4.74	n/a	n/a	n/a
Ultimate Alt.	2.30	2.30	7.34		15.56	n/a	n/a
With Noise Abatement							
# Res. Impctd[5]	0	0	0	0	0	n/a	n/a
# Bus. Impctd[5]	0	0	0	0	0	n/a	n/a
# Schools Impctd[5]	0	0	0	0	0	n/a	n/a
# Parks Impctd[5]	0	0	0	0	0	n/a	n/a

1. Not calculated for the three proposed noise walls on Camp Pendleton.
2. All the areas exceeding the NAC under the No Action Alternatives are along I-5. These exceedences will occur with any of the build Alternatives but are not included in the table above because noise abatement for these areas is not required under the build Alternatives. These areas are included in the I-5 Alternative.
3. No Action Alternative: OCP-2000.
4. No Action Alternative: RMV Development Plan.
5. Impacted means exposed to noise levels approaching or exceeding the FHWA/Caltrans NAC or experiencing a substantial noise increase per Caltrans Definition of 12 dBA Leq(H).

Source: Mestre Greve Associates (2003).

TABLE 4.21-20
ATTENUATED NOISE LEVELS WITH SOUND WALLS AT RECEPTOR LOCATIONS

With Barrier Noise Levels for FEC-W-Ultimate Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
1	67	4.9m (16')	61 (6)
3	74	4.9m (16')	65 (9)
7	71	4.9m (16')	66 (5)
9a	65	4.9m (16')	58 (7)
9b	67	4.9m (16')	58 (9)
9c	64	4.9m (16')	57 (7)
9e	61	4.9m (16')	56 (5)
9f	62	4.9m (16')	56 (6)
With Out of Right-of-Way Barrier Noise Levels for FEC-W-Ultimate Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
--	--	--	--

With Barrier Noise Levels for FEC-W-Initial Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
1	67	4.9m (16')	61 (6)
3	74	4.9m (16')	65 (9)
7	71	4.9m (16')	66 (5)
9a	63	4.9m (16')	56 (7)
9b	64	4.9m (16')	56 (8)
9c	62	4.9m (16')	56 (6)
9e	59	4.9m (16')	59 (5)
9f	55	4.9m (16')	54 (5)

With Out of Right-of-Way Barrier Noise Levels for FEC-W-Initial Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
--	--	--	--

With Out of Right-of-Way Barrier Noise Levels for FEC-M Ultimate Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
1	67	4.9m (16')	61 (6)
3	74	4.9m (16')	65 (9)
7	71	4.9m (16')	66 (5)
9a	65	4.9m (16')	58 (7)
9b	67	4.9m (16')	58 (9)
9c	64	4.9m (16')	57 (1)

TABLE 4.21-20
ATTENUATED NOISE LEVELS WITH SOUND WALLS AT RECEPTOR LOCATIONS

9e	61	4.9m (16')	56 (5)
9f	62	4.9m (16')	56 (6)

With Barrier Noise Levels for FEC-M Ultimate Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
--	--	--	--

With Barrier Noise Levels for FEC-M-Initial Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
1	67	4.9m (16')	61 (6)
3	74	4.9m (16')	65 (9)
7	71	4.9m (16')	66 (5)
9a	63	4.9m (16')	56 (7)
9b	64	4.9m (16')	56 (8)
9c	62	4.9m (16')	56 (6)
9e	59	4.9m (16')	54 (5)
9f	59	4.9m (16')	54 (5)

With Out of Right-of Way Barrier Noise Levels for FEC-M-Initial Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
--	--	--	--

With Barrier Noise Levels for A7C-FEC-M-Ultimate Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
1	67	4.9m (16')	61 (6)
3	74	4.9m (16')	65 (9)
7	71	4.9m (16')	66 (5)
9a	65	4.9m (16')	58 (7)
9b	67	4.9m (16')	58 (9)
9c	64	4.9m (16')	57 (7)
9e	61	4.9m (16')	56 (5)
9f	62	4.9m (16')	56 (6)

With Out of Right-of-Way Barrier Noise Levels for A7C-FEC-M-Ultimate Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
--	--	--	--

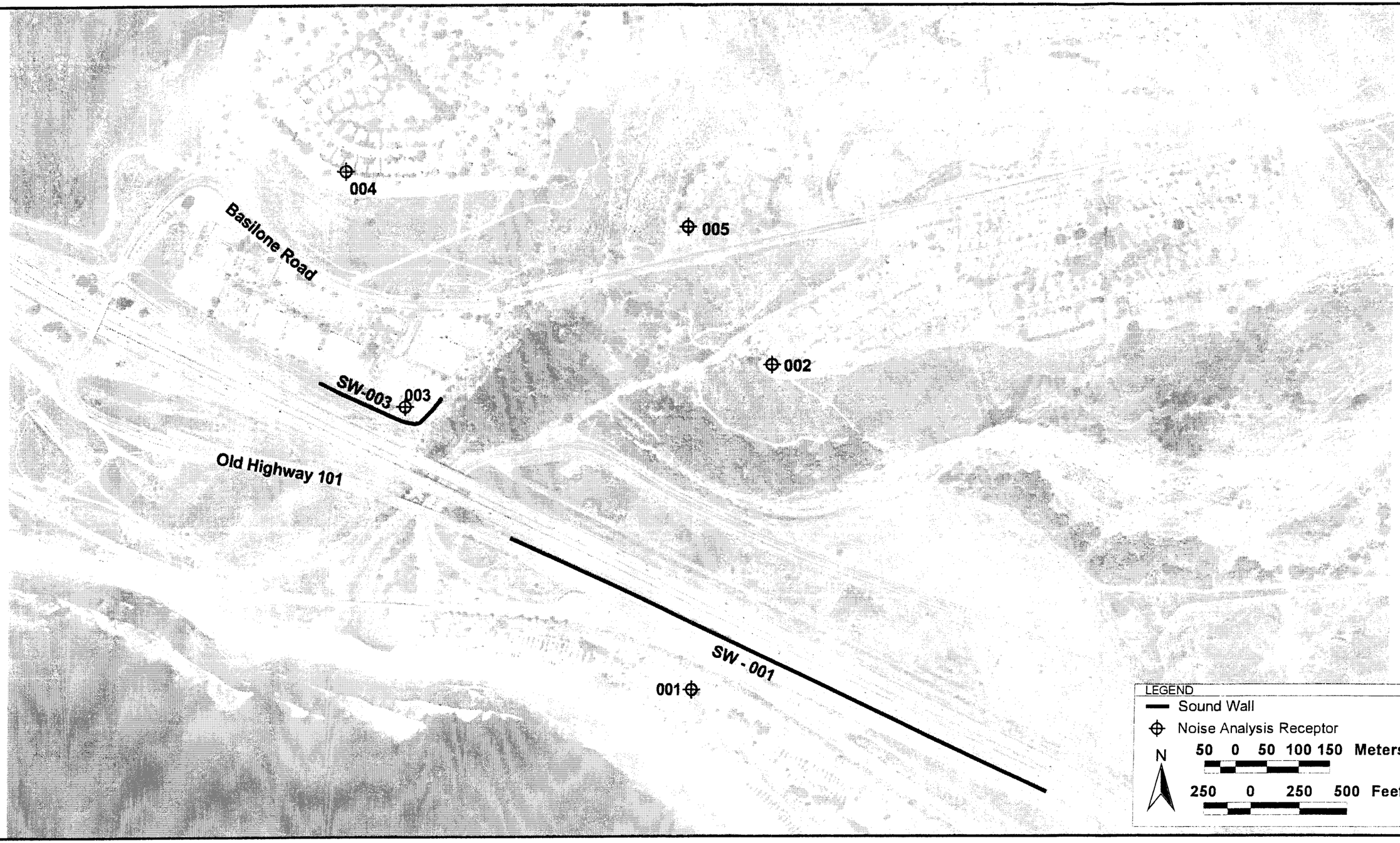
TABLE 4.21-20
ATTENUATED NOISE LEVELS WITH SOUND WALLS AT RECEPTOR LOCATIONS

With Barrier Noise Levels for A7C-FEC-M-Initial Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
1	67	4.9m (16')	61 (6)
3	74	4.9m (16')	65 (9)
7	71	4.9m (16')	66 (5)
9a	63	4.9m (16')	56 (7)
9b	64	4.9m (16')	56 (8)
9c	62	4.9m (16')	56 (6)
9e	59	4.9m (16')	54 (5)
9f	59	4.9m (16')	54 (5)

With Out of Right-of-Way Barrier Noise Levels for A7C-FEC-M-Initial Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
--	--	--	--

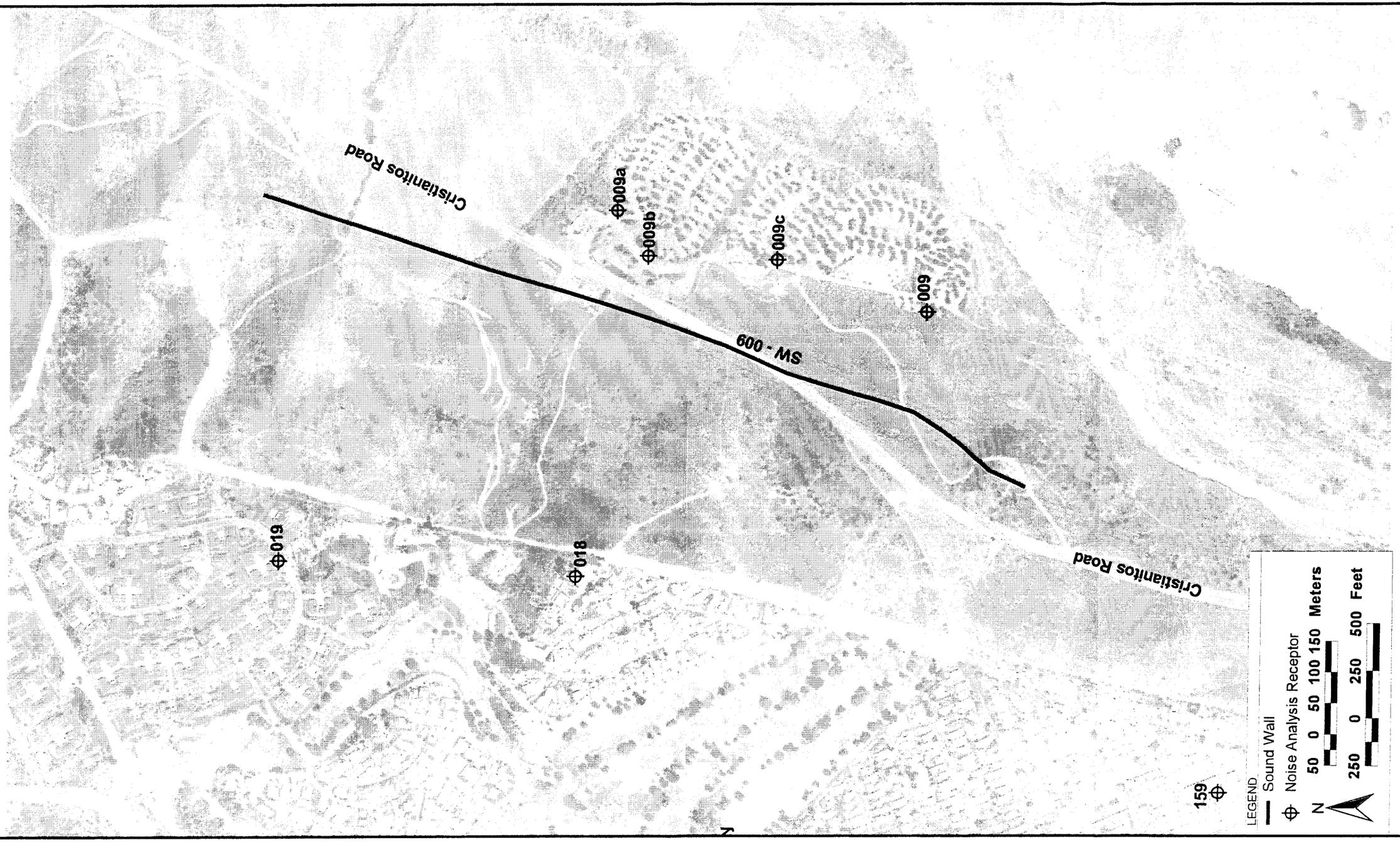
With Barrier Noise Levels for the I-5 Alternative Peak Hour Noise Level and Insertion Loss With Barrier of Height			
Receptor	**Noise Level (w/o barrier dBA Leq)**	**Recommended Barrier Height**	**Noise Level with Barrier (dBA Leq) and Noise Reduction**
7	67	3.7m (12')	62 (5)

Source: Mestre Greve Associates (2003).



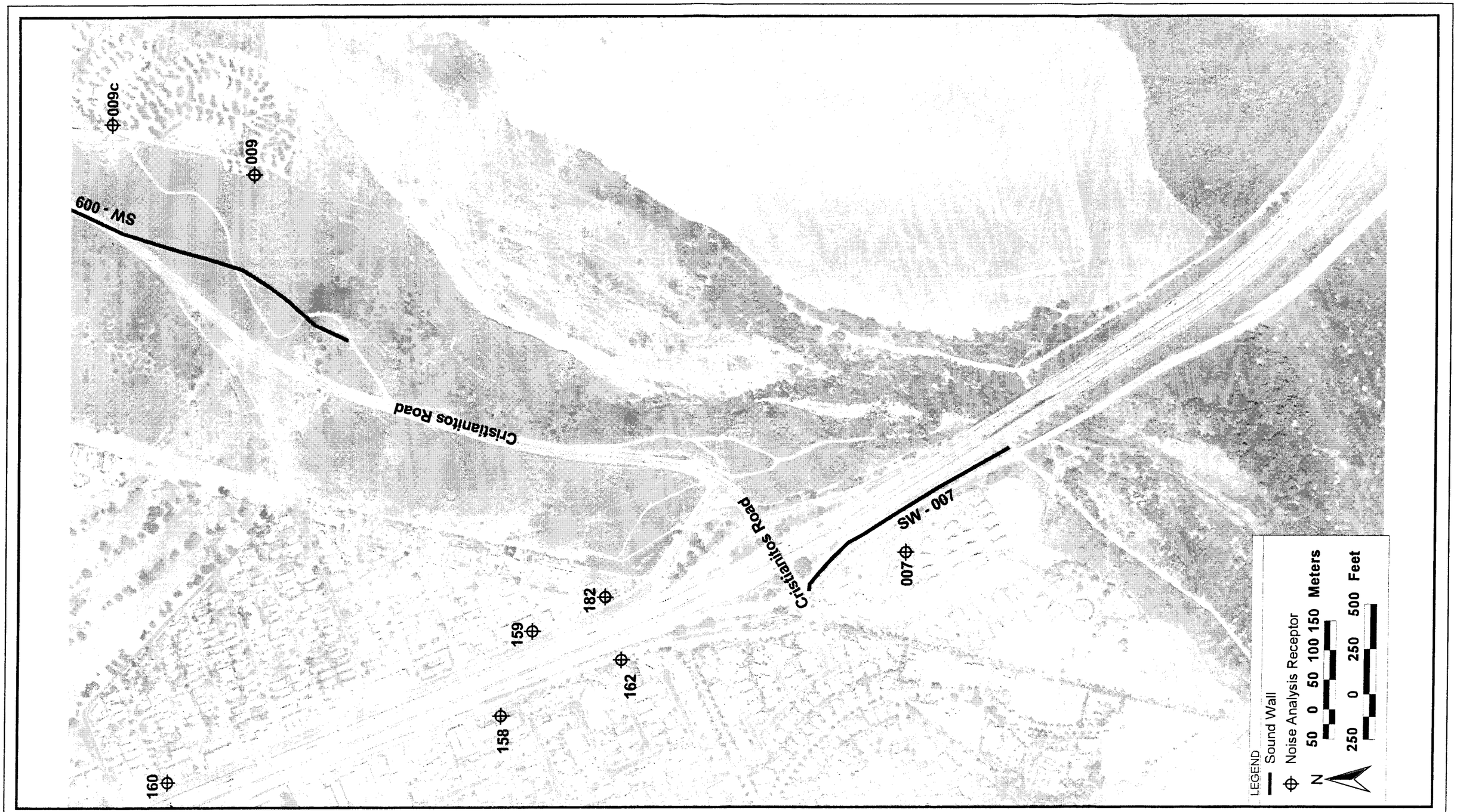
Source: Mestre Greve Associates (2003)

Sound Walls SW-001 & SW-003
FEC-W, FEC-M & A7C-FEC-M Alternatives



Source: Mestre Greve Associates (2003)

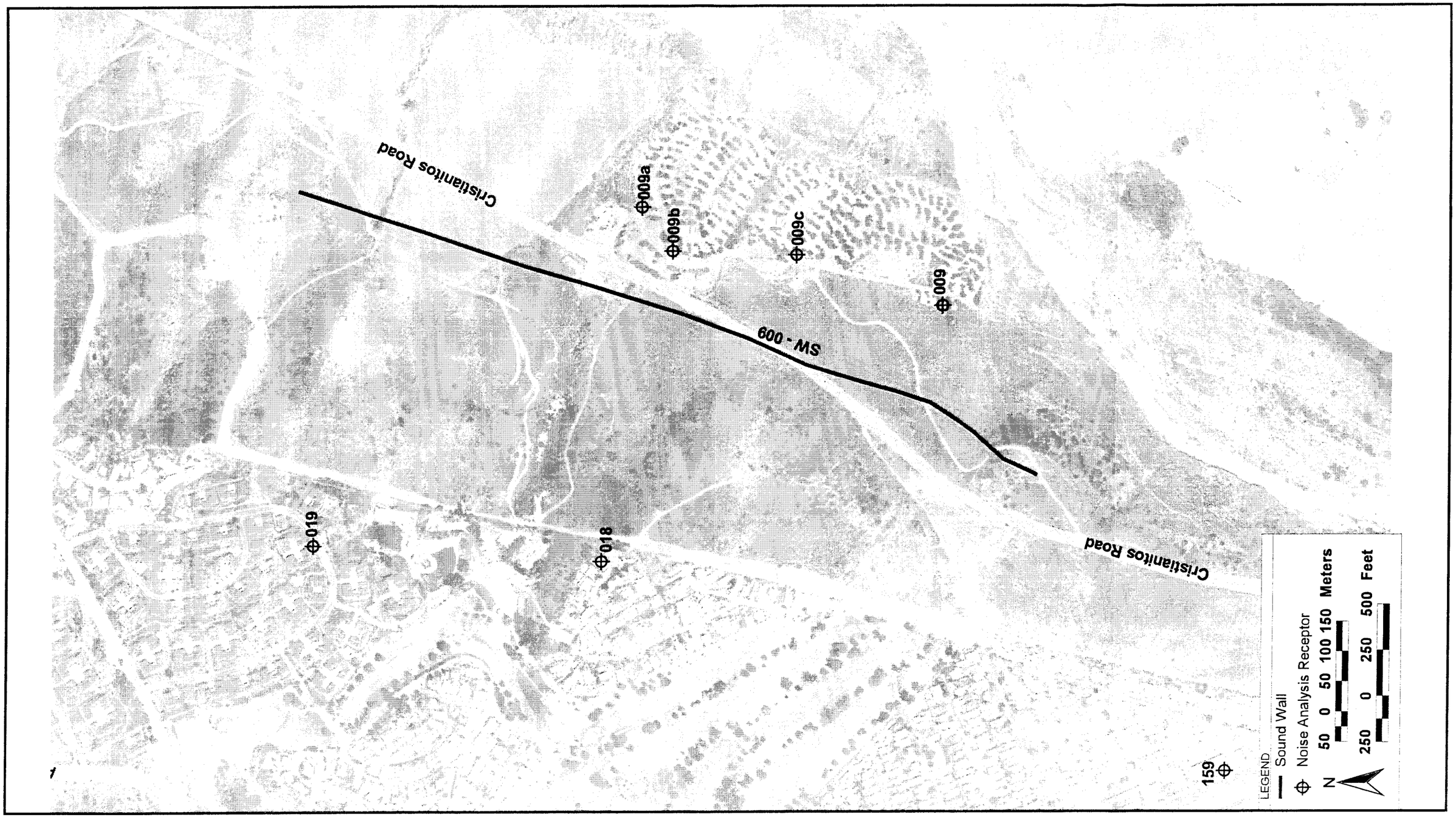
Sound Wall SW-009
FEC-W, FEC-M & A7C-FEC-M Ultimates



Source: Mestre Greve Associates (2003)

Sound Wall SW-007

FEC-W, FEC-M & A7C-FEC-M Alternatives and I-5 Alternative



Source: Mestre Greve Associates (2003)

Sound Wall SW-009
FEC-W, FEC-M & A7C-FEC-M Initials

TABLE 4.21-21
APPLICABILITY OF CONSTRUCTIONAND LONG TERM NOISE MITIGATION MEASURES BY ALTERNATIVE

Alternatives	Short Term						Long Term			
	N-1	N-2	N-3	N-4	N-5	N-6	N-7	N8	N-9	N-10
FEC-W	--	✔	✔	✔	✔	✔	✔	✔	✔	✔
FEC-M	--	✔	✔	✔	✔	✔	✔	✔	✔	✔
CC	--	✔	✔	✔	✔	✔	✔	✔	✔	✔
A7C-FEC-M	--	✔	✔	✔	✔	✔	✔	✔	✔	✔
I-5	--	--	✔	✔	✔	--	--	--	--	--
No Action-OCP	--	--	--	--	--	--	--	--	--	--
No Action-RMV	--	--	--	--	--	--	--	--	--	--

Source: Mestre Greve Associates (2003).

Source: P&D Consultants and Psomas (2003)

Biological Resources Study Area for Camp Pendleton

TABLE 4.21-22
NORMALIZED IMPACT RANK SCORES FOR ALL CRITERIA AND CORRIDOR INITIALS CORRIDOR FOOTPRINTS (1)

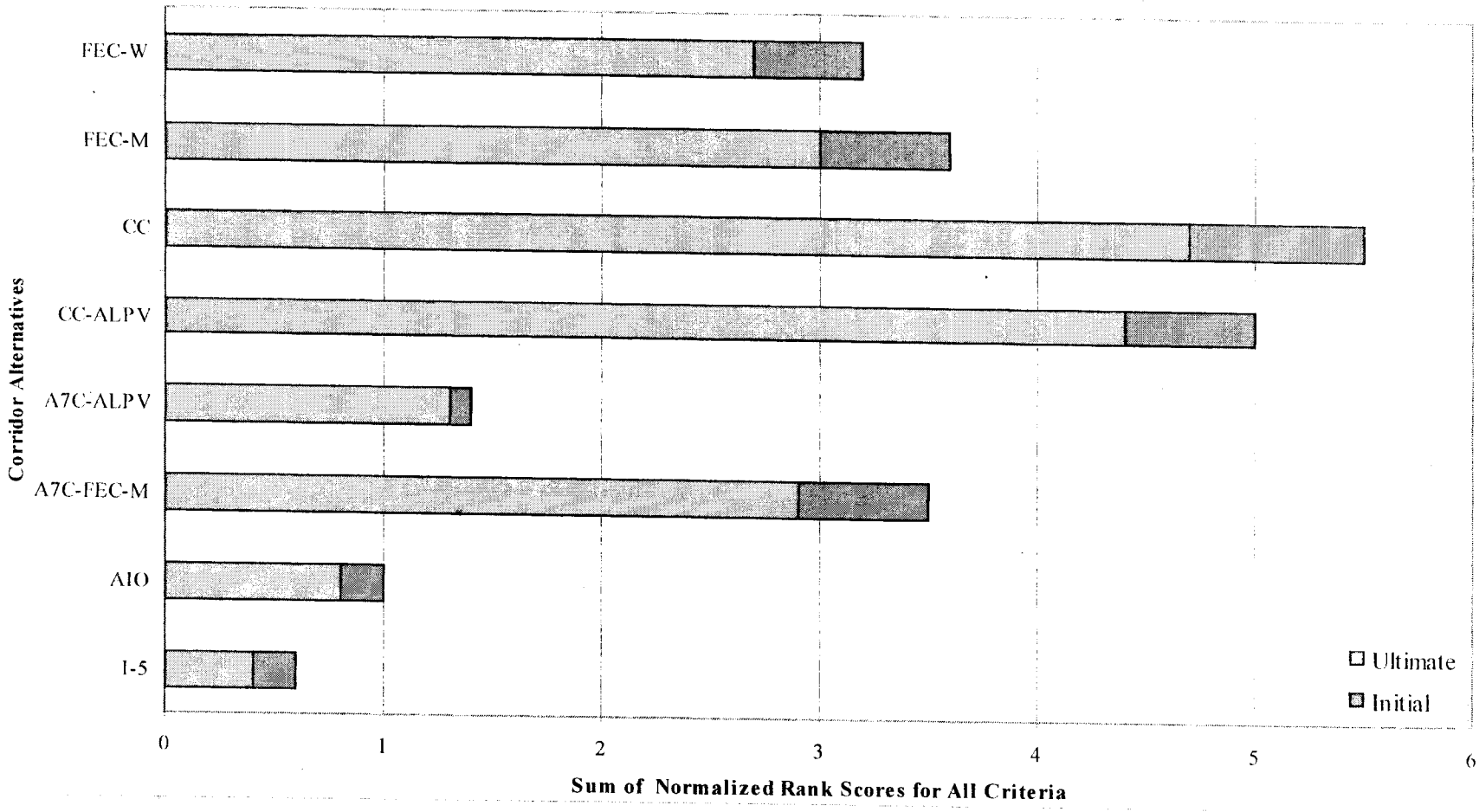
Corridor	Criteria								Total Impact Rank Score
	1	2	3a	3b	3c	4a	4b	4c	
A7C-ALPV	0.4	0.1	0.2	0.2	0.1	0.2	0.1	0.1	1.4
CC	1.0	0.3	0.4	0.4	0.4	1.0	1.0	1.0	5.5
CC-ALPV	0.8	0.3	0.4	0.4	0.4	0.9	0.9	0.9	5.0
FEC-M	0.9	0.3	0.2	0.2	0.2	0.6	0.7	0.5	3.6
FEC-W	0.7	0.2	0.2	0.2	0.2	0.5	0.7	0.5	3.2
A7C-FEC-M	0.9	0.2	0.2	0.2	0.2	0.6	0.7	0.5	3.5
I-5	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.6

Source: Smith (2003).
(1) Normalized rank was recalculated based only on those alternatives analyzed in the EIS/SEIR to adjust for deleted alternatives. Totals are rounded to the nearest tenth.

TABLE 4.21-23
NORMALIZED IMPACT RANK SCORES FOR ALL CRITERIA AND CORRIDOR ULTIMATES CORRIDOR FOOTPRINTS (1)

Corridor	Criteria								Total Impact Rank Score
	1	2	3a	3b	3c	4a	4b	4c	
A7C-ALPV	0.3	0.1	0.2	0.2	0.1	0.2	0.1	0.1	1.3
CC	0.7	0.2	0.3	0.3	0.3	0.9	0.9	0.9	4.7
CC-ALPV	0.6	0.2	0.3	0.3	0.3	0.9	0.9	0.9	4.4
FEC-M	0.6	0.2	0.2	0.2	0.2	0.5	0.6	0.5	3.0
FEC-W	0.5	0.1	0.1	0.1	0.1	0.4	0.6	0.5	2.7
A7C-FEC-M	0.6	0.2	0.2	0.2	0.2	0.5	0.6	0.5	2.9
I-5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4

Source: Smith (2003).
(1) Normalized rank was recalculated based only on those alternatives analyzed in the EIS/SEIR to adjust for deleted alternatives. Totals are rounded to the nearest tenth.



Sum of normalized rank scores for all criteria and corridor alternatives for the initial and ultimate footprints.
(Note: riparian ecosystems are not necessarily jurisdictional under Section 404.)
Values for initial include values already identified for ultimate phase.

Source: Smith (2003)

Sum of Normalized Rank Scores for All Criteria

TABLE 4.21-24
NORMALIZED IMPACT RANK SCORES FOR DIRECT IMPACT CRITERIA INITIAL CORRIDOR FOOTPRINTS*

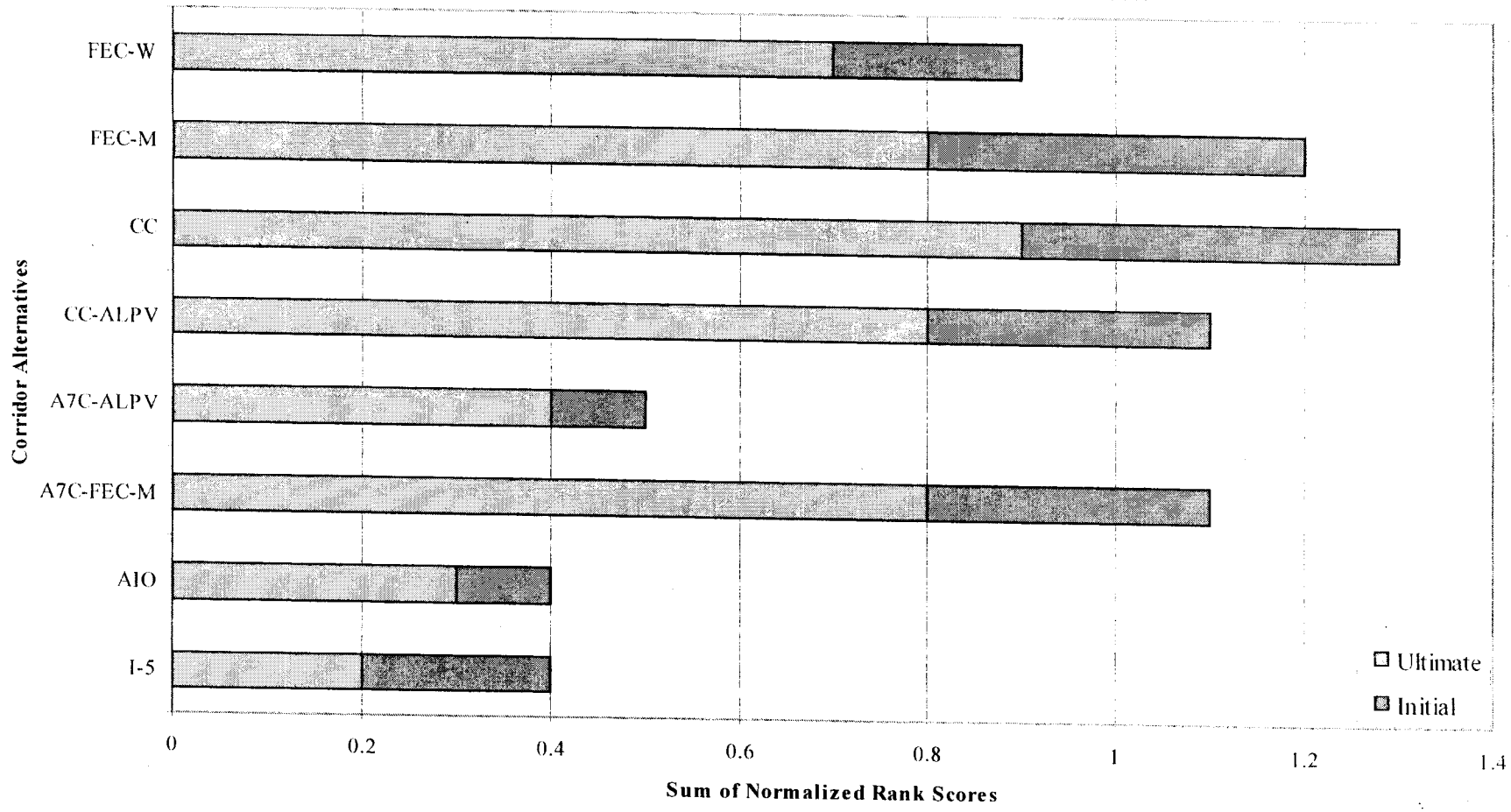
Corridor	Criteria		Total Impact Rank Score
	1	2	
A7C-ALPV	0.4	0.1	0.5
CC	1.0	0.3	1.3
CC-ALPV	0.8	0.3	1.1
FEC-M	0.9	0.3	1.2
FEC-W	0.7	0.2	0.9
A7C-FEC-M	0.9	0.2	1.1
I-5	0.3	0.1	0.4

*Criteria 1 and 2 only.
Source: Smith (2003).

TABLE 4.21-25
NORMALIZED IMPACT RANK SCORES FOR DIRECT IMPACT CRITERIA ULTIMATE CORRIDOR FOOTPRINTS*

Corridor	Criteria		Total Impact Rank Score
	1	2	
A7C-ALPV	0.3	0.1	0.4
CC	0.7	0.2	0.9
CC-ALPV	0.6	0.2	0.8
FEC-M	0.6	0.2	0.8
FEC-W	0.5	0.1	0.7
A7C-FEC-M	0.6	0.2	0.8
I-5	0.2	0.0	0.2

*Criteria 1 and 2 only.
Source: Smith (2003).



Source: Smith (2003)

Sum of Normalized Rank Scores

TABLE 4.21-26
DIRECT IMPACTS TO VEGETATION COMMUNITIES AND WILDLIFE SPECIES ON CAMP PENDLETON BASED ON ULTIMATES
(Flora are measured in area and fauna is measured in numbers found)

	FEC-W		FEC-M		A7C-FEC-M		I-5	
	ha	ac	ha	ac	ha	ac	ha	ac
Vegetation Community								
Venturan-Diegan Coastal Sage Scrub (2.3)	85.62	211.41	85.63	211.43	85.62	211.41	0.2	0.04
Floodplain Sage Scrub (2.6)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Scrub (2.1, 2.4, 2.7)	0.34	0.83	0.34	0.83	0.34	0.83	0.00	0.00
Chaparral/Sage Scrub Ecotone (3.1)	3.70	9.13	3.70	9.13	3.70	9.13	0.00	0.00
Chaparral Communities (3.2, 3.3, 3.7, 3.12)	10.93	26.99	10.93	26.99	10.93	26.99	0.00	0.00
Native Grassland (4.2, 4.3, 4.4)	0.64	1.59	0.64	1.59	0.64	1.59	0.00	0.00
Annual Grassland (4.1)	37.91	96.31	39.02	96.34	39.01	96.32	0.00	0.00
Ruderal Grassland (4.6)	4.32	10.60	4.32	10.65	4.32	10.67	0.00	0.00
Vernal Pools, Seeps & Wet Meadows (5.0)[1]*	0.04	0.10	0.04	0.10	0.04	0.10	0.00	0.00
Marsh Communities (6.0)[1]*	0.97	2.40	0.97	2.40	0.97	2.40	0.00	0.00
Riparian Herb and Mule Fat Scrub (7.0, 7.3)[1]*	0.25	0.62	0.25	0.62	0.25	0.62	0.00	0.00
Other Riparian Communities (7.2, 7.4, 7.5, 7.6, 7.7, 7.8)[1]*	2.79	6.88	2.79	6.88	2.79	6.88	0.00	0.00
Coast Live Oak Woodland (8.1)	0.43	1.07	0.43	1.07	0.43	1.07	0.00	0.00
Blue Elderberry Woodland (8.4)	0.15	0.37	0.15	0.37	0.15	0.37	0.00	0.00
Watercourses (13.0)	0.51	1.25	0.51	1.25	0.51	1.25	0.00	0.00
Cliff and Rock Communities (10.3)	1.15	2.84	1.15	2.84	1.15	2.84	0.00	0.00
Agriculture (14.0)	2.46	6.08	2.46	6.08	2.46	6.08	0.00	0.00
Developed, Disturbed, Graded (15.0, 16.0)	31.13	76.87	31.13	76.87	31.13	76.87	2.18	5.39

TABLE 4.21-26
DIRECT IMPACTS TO VEGETATION COMMUNITIES AND WILDLIFE SPECIES ON CAMP PENDLETON BASED ON ULTIMATES
(Flora are measured in area and fauna is measured in numbers found)

	FEC-W		FEC-M		A7C-FEC-M		I-5	
	ha	ac	ha	ac	ha	ac	ha	ac
Rare Plants	# of populations	# of plants	# of populations	# of plants	# of populations	# of plants	# of populations	# of plants
Thread-Leaved Brodiaea (FT)	3	168	3	168	3	168		
Birds	**Use areas**		**Use areas**		**Use areas**		**Use areas**	
California Gnatcatcher	6		6		6		0.00	0.00
Cactus Wren	1		1		1			
Herptiles	Individuals		Individuals		Individuals		Individuals	
Arroyo Toad (FE)	2		2		2		1	1
Mammals								
Pacific Pocket Mouse*(FE)	0	0	*		*		0	0

Blank cells indicate that there is no impact.
FT: Federally Threatened
FE: Federally Endangered
* This species has been avoided through design changes.
(1) These are considered wetland communities in the biological analysis; however, these do not represent USACOE jurisdictional water or wetlands.

TABLE 4.21-27
ARCHAEOLOGICAL RESOURCES WITHIN THE DISTURBANCE LIMITS OF THE FEC-W, FEC-M, AND A7C-FEC-M ALTERNATIVES

Resource #	Initial	Ultimate	Description	Condition	NRHP Eligibility
CA-ORA-22 (includes CA-SDI-4282, -4535, -8435, -11703, -11929, -13071)	Yes	Yes	Village site (with burials) San Mateo Archaeological National Register District	Partially destroyed	Yes - listed
CA-SDI-13,325	Yes	Yes	Village site	Tested Surface collected	Yes
CA-SDI-1075	Yes	Yes	Village site	Partially destroyed	Unknown
CA-SDI-4412	Yes	Yes	Lithic scatter, Forster City monument marker	Partially destroyed	Unknown
CA-SDI-1074	Yes	Yes	Village site	Partially destroyed	Yes

Source: Greenwood and Associates (2003).

TABLE 4.21-28
HAZARDOUS MATERIALS SITES IN THE SOCTIIP STUDY AREA

Map No.	Name/Address	Appendix Reference	Database Listings	Concern
1	MCB-Camp Pendleton Marine Base	(No Listing)	NPL	Leaking USTs, other hazardous materials.
1A	MCB-Camp Pendleton Gas Station	(No Listing)	(No Listing)	Service station with USTs.

Key to Database Listing

C	Cortese List	R	Resource Conservation and Recovery Act List (RCRIS) (hazardous-waste generators)
H	HAZNET List	NPL	National Priorities List
L	Leaking underground storage tank list	UST	Underground storage tank
LUST	Leaking underground storage tank	WDS	Waste Discharge System list
MWUDS	Waste Management Unit Database System	U	Underground storage tank list

Source: P&D Consultants (2003).
Appendix References: Appendix - Cluster - page.

TABLE 4.21-29
IMPACTS OF THE ALTERNATIVES RELATED TO HAZARDOUS MATERIALS

ALTERNATIVE	TYPE OF HAZARDOUS MATERIAL	MAP REFERENCE NUMBER (1)	NUMBER OF SITES	COMMENTS (2)
FEC-M				
FEC-W				
CC	Military sites	--	0	Not applicable.
A7C-FEC-M				
I-5	Military sites	--	0	Not applicable.
No Action	Military sites	--	0	Not applicable.

Source: P&D Consultants (2003).

TABLE 4.21-30
SUMMARY OF SHORT AND LONG TERM VISUAL IMPACTS OF THE BUILD ALTERNATIVES BY ASSESSMENT UNIT (AU) ON MCB CAMP PENDLETON

Summary of Short and Long Term Impacts [1]	
All Assessment Units	
Light and Glare	Increased light and glare in all assessment units. Substantially adverse.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials. Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only.
AU13	
Visual Quality	Changes in the views of residents (sensitive viewers) in San Clemente and on MCB Camp Pendleton. Not adverse.
	Reduction in visual quality for non-sensitive viewers. Not adverse.
View Quality	No impact on regionally outstanding views.
Community Character	No impact.
AU-33	
Visual Quality	Reduction in visual quality for users of San Onofre State Beach, Cristianitos Subunit (sensitive viewers), especially viewers from San Mateo Campground. Substantially adverse.
	Reduction in visual quality for residents (sensitive viewers) in the San Onofre 1 Housing of Camp Pendleton. Adverse but less than substantial..
	Reduction in visual quality from marine training areas. No adverse impact on ability of MCB Camp Pendleton to train marines.
	Reduction in visual quality from ocean and land view points for users of San Onofre State Beach, Trestles and Cristianitos Subunits (sensitive viewers). Adverse but less than substantial.
	Reduction in visual quality for residents (sensitive viewers) of San Mateo Point Housing of Camp Pendleton. Substantially adverse.
	Reduction in visual quality for non-sensitive viewers. Adverse but less than substantial.
View Quality	No impact on regionally outstanding views.
Community Character	Conflict with policies of San Onofre State Beach regarding blockage of views of the ocean. Substantially adverse.
	Conflict with policies of the County of San Diego related to scenic highways. Substantially adverse.
AU40	
Visual Quality	Reduction in visual quality for residents along the alignment. Substantially adverse.
View Quality	No impact.
Community Character	No Impact.
	Conflict with policies of the County of Orange related to scenic highways. Substantially adverse.

[1] Construction impacts are short term and all other impacts are long term.
Source: P&D Consultants (2003).

LEGEND

Faults; U = upthrown side, D = downthrown side, bar and ball on downthrown side, arrows along fault indicate relative direction of movement, arrow on fault indicates direction of dip, low angle fault indicated by barbs on upper plate.

Historic fault; displacement during the past 200 years.

Holocene fault; displacement during past 10,000 years, but not within the past 200 years.

Late Quaternary fault; displacement during past 700,000 years.

Quaternary fault; displacement during past 1.6 million years.

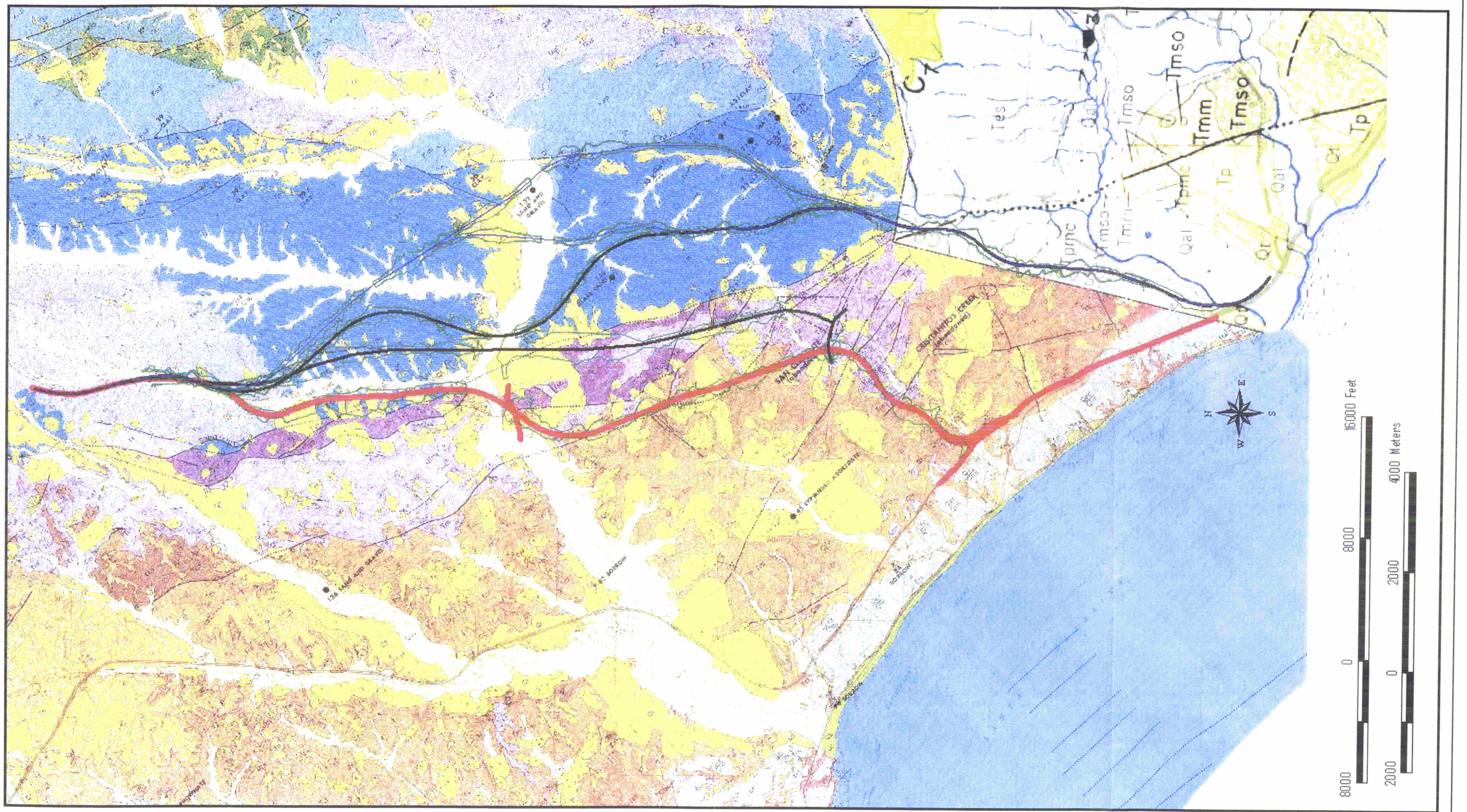
Pre-Quaternary fault; displacement older than past 1.6 million years.

Fault segment associated with a significant linear trend of accurately located earthquake epicenters.

Source: Geopentech (2003)

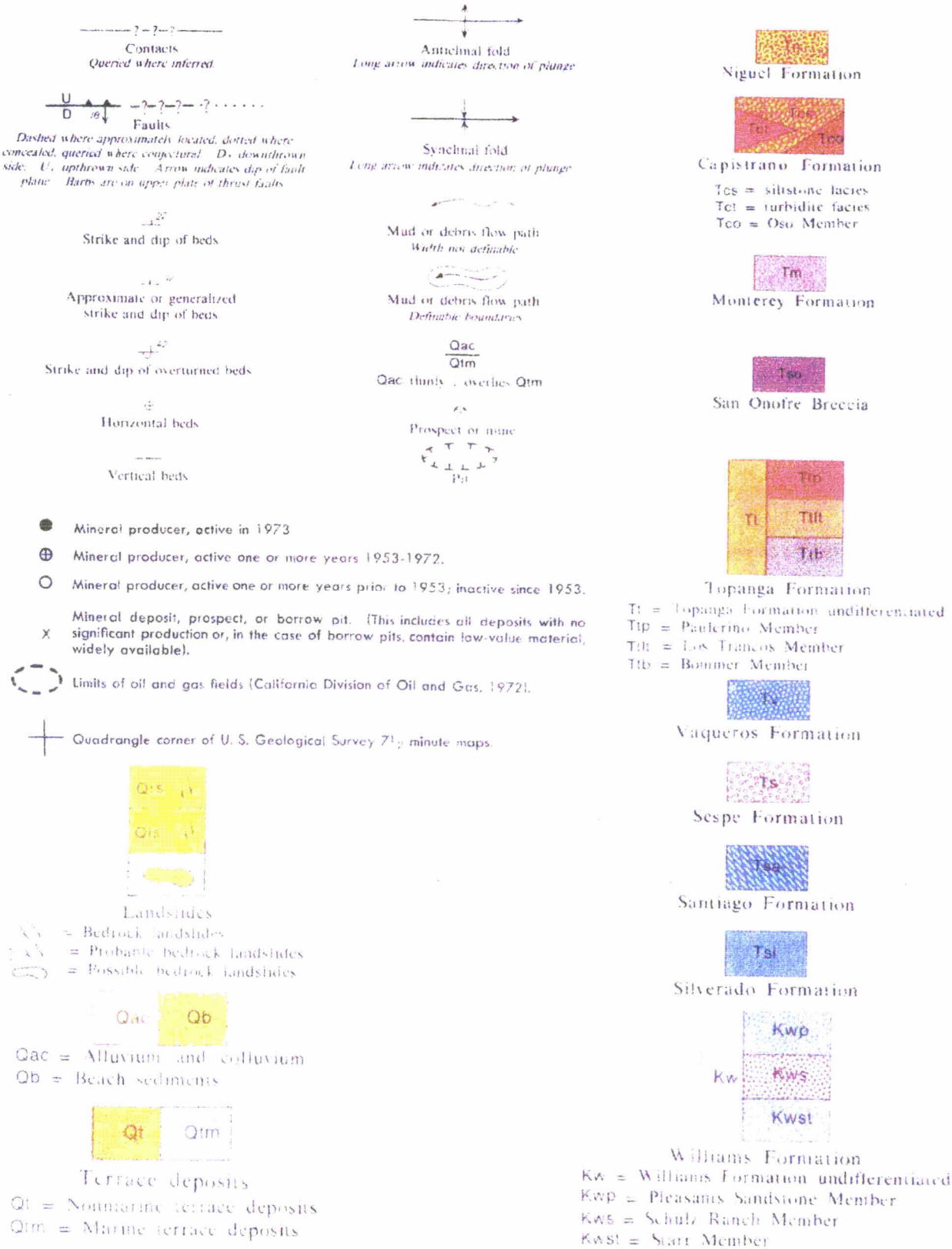
Regional Fault Map

Figure 4.21-18



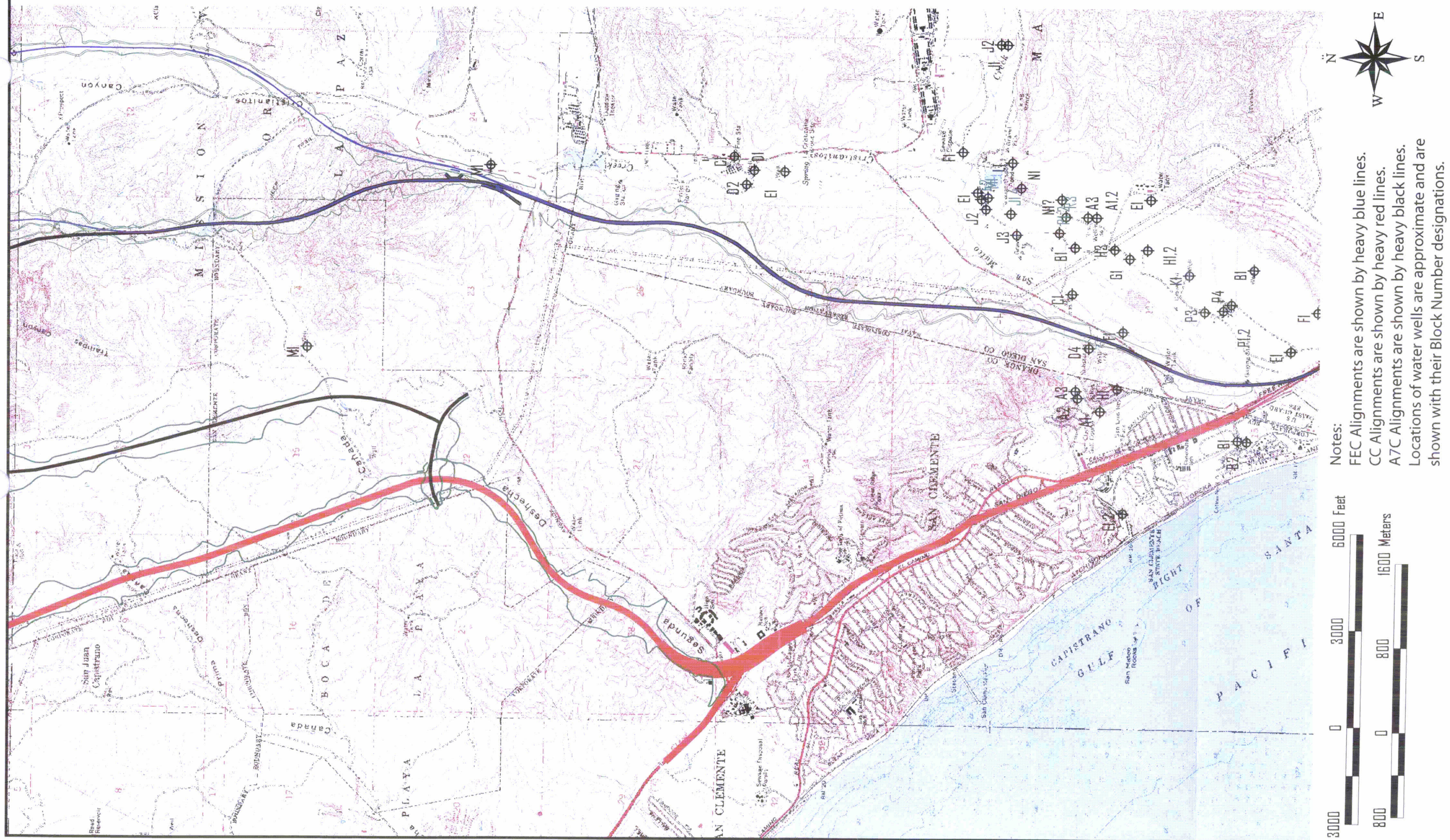
Source: Geopentech (2003).

Regional Geologic Map



Source: Geopentech (2003).

Legend of Symbols and Geologic Units for Regional Geologic Map



Source: Geopentech (2003)

Location of Local Groundwater Wells
South Half of Study Area

TABLE 4.21-31
SUMMARY OF IMPACTS RELATED TO EARTH RESOURCES ON CAMP PENDLETON

Alternative	Fault Movement	Liquefaction	Landslides	Differential Compaction/ seismic settlement	Ground Rupture	Ground Shaking	Tsunami	Seiches	Flooding	Change in Groundwater Levels	Disposal of Excavated Material	Percolation of Waste Material
FEC-W	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material.	No impact.
FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material.	No impact.
CC	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material.	No impact.
A7C-FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material.	No impact.
I-5	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Temporary lowering of groundwater levels.	Increase disposal of excavated material.	No impact.
No Project-OCP-2000	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
No Project-RMV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.

Alternative	Landslides and Mudflows	Unstable Cut and Fill Slopes	Collapsible and Expansive Soils	Trench Wall Stability	Erosion of Graded Areas	Alteration of Runoff	Unprotected Drainage Ways	Increased Impervious Surfaces	Extraction of Groundwater, gas, oil, geothermal energy	Hydrocompaction and peat oxidation	Lava Flow	Ash Fall
FEC-W	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
FEC-M	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
CC	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
A7C-FEC-M												
I-5	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	Reduce natural ground surface.	No impact.	No impact.	No impact.	No impact.
No Project-OCP-2000	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
No-Project-RMV	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.

Source: GeoPentech (2003).

TABLE 4.21-32
SUMMARY OF THE APPLICABILITY OF THE
MITIGATION MEASURES BY ALTERNATIVE FOR EARTH RESOURCES

Alternative	G-1	G-2	G-3	G-4
Corridor Alternatives				
A7C-FEC-M	✓	✓	✓	✓
CC	✓	✓	✓	✓
FEC-W	✓	✓	✓	✓
FEC-M	✓	✓	✓	✓
Non-Corridor Alternative				
I-5	✓	✓	✓	✓
No-Action Alternatives				
OCP-2000	--	--	--	--
RMV Development Plan	--	--	--	--

Legend: ✓= Mitigation measure applies to Alternative.
Source: GeoPentech (2003).

TABLE 4.21-33
SUMMARY OF ROCK UNITS EXPOSED IN THE STUDY AREA ON MCB CAMP PENDLETON AND THE TYPES OF FOSSILS POTENTIALLY PRESENT

Rock Unit	Types of Fossils Potentially Present	Age
Landslides	Landslide deposits may contain fossils, but the strata are typically displaced from their original stratigraphic position. This displacement and the subsequent loss of contextual data limits the scientific value of any fossil material found in these deposits.	Variable
Younger Alluvium	Fossils unlikely to be present.	Holocene
Capistrano Formation	A diverse array of marine and terrestrial animals is known from the Capistrano Formation. Invertebrates include siliceous microfossils (diatoms, radiolarians), foraminifera, sponges, bryozoans, molluscs (ark shells, scallops, tellin clams, bean clams, oysters, dove shells, staircase snails, moon snails, slipper snails, olive snails, whelks, high spiralled snails), crustaceans (barnacles, crabs), and sand dollars. Vertebrates include toads, reptiles (leatherback turtle, pond turtle, tortoise, crocodile), sharks and rays (seven-gill shark, mackerel shark, mako shark, great white shark, extinct great white shark, tiger shark, blue shark, leopard shark, lemon shark, basking shark, snaggle-toothed shark, hammerhead shark, saw shark, ratfish, bat ray), fish (herrings, salmon, saber-toothed salmon, hake fish, croaker, sea bass, pile surfperch, sheephead, knifejaw, snake mackerel, mackerels, bill fish, lefteye rounder halibut, California halibut, lanternfish), birds (loon, grebe, cormorant, albatross, gannet, shearwater, Cedros Island flightless auk, Lucas flightless auk, Cedros Island little puffin, eagle, pelican), terrestrial mammals (rabbit, rodent, mastodon, horse, rhinoceros, camelid, antelope, weasel, primitive dog), and marine mammals (sea lion, fur seal, walrus, false walrus, seal, desmostylians, sea cow, dugong, right whale, fin-back whale, sperm whale, porpoises, dolphins). Other specimens include trace fossils in the form of coprolites, burrows and wood casts.	Late Miocene to Early Pliocene
Monterey Formation	Numerous invertebrate, fish and marine-mammal fossils have been recovered from the Monterey Formation in Orange County. Siltstones and shales in Aliso Viejo, Laguna Niguel, and other Orange County localities have produced a wide array of fossils including coprolites, algae, plant fragments, pollen (pine, primrose, dune grass, willow), foraminifera, diatoms, sponges, bryozoan colonies, serpulid worms, pectens, oysters, clams, marine snails, ostracods (microscopic crustaceans), barnacles, sand dollars, sharks, bat rays, articulated fish in mortality assemblages such as puffer fish, sheepshead, trigger fish and several species of schooling fish, turtles, crocodiles, dolphins, baleen whales, sea lions, manatees (sea cows), desmostylians, horses, squirrels, dogs, deer, and birds.	Middle to Late Miocene

TABLE 4.21-33
SUMMARY OF ROCK UNITS EXPOSED IN THE STUDY AREA ON MCB CAMP PENDLETON AND THE TYPES OF FOSSILS POTENTIALLY PRESENT

Rock Unit	Types of Fossils Potentially Present	Age
	Pecten Reef is the name given to the conspicuous invertebrate fossil-bearing limestone lenses that occur at the base of the Monterey Formation in Orange County. Exposures occur over about a 33 km (10 mile) long area, and may be much more extensive in the subsurface. In 1982, a 0.4 hectare (one acre) exposure of the Pecten Reef was designated as an Orange County Historical Landmark (Stadum 1984). The Pecten Reef was not a true reef (living in place and then buried), but rather a deposit of fossils transported and later cemented into bedded-limestone coquinas (deposits of transported shells).	
Older Alluvium and Terrace Deposits	Pleistocene taxa from alluvial and terrace deposits include amphibians (toad, frog, newt), reptiles (pond turtle, desert tortoise, fence lizard, alligator lizard, rattlesnake, gopher snake) birds (duck, hawk, burrowing owl, quail, coot, sparrow) and mammals (shrew, ground sloth, jack rabbit, cottontail rabbit, ground squirrel, pocket gopher, pocket mouse, kangaroo rat, deer mouse, mouse, woodrat, vole, muskrat, coyote, dire wolf, weasel, sabertooth cat, mammoth, mastodon, horse, camel, antelope, deer, bison). Marine terrace deposits, such as the San Pedro Sand to the north, have produced marine invertebrates and vertebrates.	Pleistocene to Early Holocene
Santiago Formation	Fairly extensive marine molluscan and foraminiferan faunas are known from this formation. Important Eocene terrestrial mammal faunas have been found in northern San Diego County in Members B and C (Walsh 1996). Fossils from the Santiago Formation include land plants, molluscs, fish, turtles, lizards, oppossum-like marsupials, insectivores, pantolestid and apatotheriid primitive mammals, primates, carnivores, several types of rodents, rhinos, tapir, camels, oreodonts and deer-like artiodactyls. Fossil burrows identified as *Ophiomorpha* sp. are also known. A newly discovered bone bed was excavated in January 2001 in south Orange County at Talega (just north of Avenida Pico in the City of San Clemente) by SWCA Environmental Consultants. The sediments are mapped as the Santiago Formation by Morton and Miller (1981), but may actually belong to the lower Sespe Formation. Initial identification shows that a turtle, brontothere (extinct relative of the rhinoceros), rhinoceros, tapir, camel, at least two different oreodonts, and possibly the oldest known primitive dog (a hesperocyonid) are present in this Duchesnean Age (~37-42 mya) fauna.	Eocene

Source: SWCA Environmental Consultants (2003).
Note: The South Orange County Transportation Infrastructure Improvements Project Paleontological Resources Technical Report (SWCA Environmental Consultants, 2003) contains all of the references for the information in this table. The Report is available for review at the TCA.

TABLE 4.21-34
PALEONTOLOGICAL SENSITIVITY OF THE
SOCTIIP BUILD ALTERNATIVES ON MCB CAMP PENDLETON

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Santiago Formation	High	High
Quaternary Terrace or Older Alluvium	High	High
Monterey Formation	High	High
Capistrano Formation	High	High
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2002).

TABLE 4.21-35
UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE DISTURBANCE LIMITS OF THE FEC-W, FEC-M AND A7C-FEC-M ALTERNATIVES ON MCB CAMP PENDLETON

Utility Provider/Owner	Type of Utility	Location
Electrical		
San Diego Gas and Electric	12kv	Crossing I-5 south of Basilone
San Diego Gas and Electric	12kv	Crossing at Basilone
San Diego Gas and Electric	12kv	East of I-5 south of Basilone
San Diego Gas and Electric	Overhead 12kv	South of Basilone
San Diego Gas and Electric	69+12kv	East of I-5 north of Basilone
San Diego Gas and Electric	12kv	East of I-5 north of Basilone
San Diego Gas and Electric	12kv	From east of El Camino to Cristianitos ramps at Cristianitos east of I-5
San Diego Gas and Electric	12kv+69kv	North of Cristianitos to east of I-5 north of Basilone
San Diego Gas and Electric	12kv	Crossing Far East at station 1391
San Diego Gas and Electric	138 & 69kv overhead	Crossing Far East at station 1389
San Diego Gas and Electric	138kv (2)	Crossing Far east at station 1389
Southern California Edison	220kv (2)	Crossing Far East at station 1145+40
Southern California Edison	220kv (2)	Crossing Far East at station 1416+40
San Diego Gas and Electric	138+12kv	Crossing Far East at station 1416+80
San Diego Gas and Electric	138+69	Crossing Far East at station 1417+20
San Diego Gas and Electric	230kv (2)	Crossing Far East at station 1418+20
San Diego Gas and Electric	230kv (2)	Crossing Far East at station 1438+80
San Diego Gas and Electric	138	Crossing Far East at station 1439+20
San Diego Gas and Electric	138kv	Crossing Far East at station 1439+40
San Diego Gas and Electric	138kv	Crossing Far East at station 1439+60
San Diego Gas and Electric	69 & 12kv	Crossing Far East at station 1439+70
San Diego Gas and Electric	12kv overhead	Crossing Far East at station 521+20
Natural Gas		
Southern California Gas	12 in.	West of I-5 frontage south of Cristianitos
Southern California Gas	12 in.	East of I-5
San Diego Gas and Electric	6 in.	Crossing under I-5
Southern California Gas	12 in.	El Camino north of Cristianitos
Fuel Supply and Transport		
None	None	None

TABLE 4.21-35
UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE DISTURBANCE LIMITS OF THE FEC-W, FEC-M AND A7C-FEC-M ALTERNATIVES ON MCB CAMP PENDLETON

Utility Provider/Owner	Type of Utility	Location
	Water	
San Onofre State Park	6 in. water	From I-5 to Lower San Mateo Wildlife Crossing
	Wastewater	
San Onofre State Park	6 in. sewer	From I-5 to Lower San Mateo Wildlife Crossing
San Onofre State Park	12 in. sewer	Crossing near San Mateo Wildlife Crossing
	Storm Drains	
None	None	None
	Communications	
Pacific Bell	Communications	Crossing I-5 south of Basilone
Pacific Bell-American Telephone and Telegraph	Communications	East of I-5
Pacific Bell	Underground communications	East of I-5 south of Basilone
Pacific Bell	Underground communications	In Basilone east of I-5
Pacific Bell	Communications	Crossing under I-5
MCI	Communications	East of I-5 and north of Basilone
MCI	Communications	Crossing I-5 & west of I-5 to station 1026
Pacific Bell	Communications underground	North of Cristianitos
Pacific Bell	Overhead	Crossing Far East station 300+00
MCB Camp Pendleton	Proposed underground communications	Cristianitos
Cox	Overhead	North of Cristianitos
MCB Camp Pendleton	Overhead	Cristianitos
Pacific Bell	Overhead	North of Cristianitos to San Onofre State Park
Cox	Underground	Cristianitos
MCB Camp Pendleton	Communications Underground	Cristianitos
	Flood Control Facilities	
None	None	None

Source: Corridor Design Management Group (2001).

TABLE 4.21-36
UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE DISTURBANCE LIMITS OF THE CC ALTERNATIVE ON MCB CAMP PENDLETON

Utility Provider/Owner	Type of Utility	Location
	Electrical	
San Diego Gas and Electric	12kv	Crossing I-5 south of Basilone
San Diego Gas and Electric	12kv	Crossing at Basilone
San Diego Gas and Electric	12kv	East of I-5 south of Basilone
San Diego Gas and Electric	12kv	South of Basilone
San Diego Gas and Electric	12kv	East of I-5 north of Basilone
San Diego Gas and Electric	69kv	East of I-5 north of Basilone
San Diego Gas and Electric	12kv	East of 1024
San Diego Gas and Electric	12kv	From 1046 to Cristianitos ramps at Cristianitos east of I-5
San Diego Gas and Electric	12kv	North of Cristianitos to 1024
San Diego Gas and Electric	69kv	North of Cristianitos to 1024
San Diego Gas and Electric	12kv	East of El Camino
	Natural Gas	
San Diego Gas and Electric	12 in.	Crossing under I-5
Southern California Gas	12 in.	East of I-5 south of Cristianitos
Southern California Gas	12 in.	El Camino north of Cristianitos
Southern California Gas	2 in.	East of El Camino
	Fuel	
None	None	None
	Water	
South Coast Water District	27 in. local feeder water main unit No. 2	Parallel from south of Camino De Estrella to south of Cristianitos
City of San Clemente	8 in. AC water	Parallel from Pico to south of Cristianitos
South Coast Water District	14 in. domestic water	Parallel from Basilone Road to south of Cristianitos Road
SOSP	6 in. water	Crossing south of Cristianitos Road
SOSP	6 in. water	Parallel to Cristianitos Road
	Wastewater	
MCB Camp Pendleton	6 in. sewer	Crossing at Bassilone Road
MCB Camp Pendleton	Parallel 6 in. sewer	North of Basilone Road to south of Cristianitos Road
	Storm Drains	
None	None	None

TABLE 4.21-36
UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE DISTURBANCE LIMITS OF THE CC ALTERNATIVE ON MCB CAMP PENDLETON

Utility Provider/Owner	Type of Utility	Location
	Communications	
Pacific Bell	Communications	Crossing I-5 south of Basilone
Pacific Bell-American Telephone and Telegraph	Communications	East of I-5
Pacific Bell	Underground Communications	I-5 south of Basilone
Pacific Bell	Underground Communications	I-5 east of Basilone
MCI	Communications	East of I-5 north of Basilone
Pacific Bell	Communications	Crossing under I-5
MCI	Communications	Crossing I-5 & west of I-5 to 1026
Pacific Bell	Communications Underground	North of Cristianitos
Cox	Communications	West of 1046
	Flood Control Facilities	
None	None	None

Source: Corridor Design Management Group (2001).

TABLE 4.21-37
IMPACTS ON ELECTRIC TOWERS AND LARGE POLES

Location Description	Number of Towers and Large Poles Within the Alignment Disturbance Limits	Maximum Number of Towers and Large Poles to be Relocated/Added (1)	Maximum Area of Temporary and Permanent Disturbance for Tower and Large Pole Relocation hectares (acres) (1)	Maximum Permanent Impact Area for Towers and Large Poles square meters (square feet) (1)	Maximum Permanent Impact Area for Utility Access Roads hectares (acres) (1)
FEC-W-Initial					
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
FEC-W-Ultimate					
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
FEC-M-Initial					
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
FEC-M-Ultimate					
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4	37.2	0.9

TABLE 4.21-37
IMPACTS ON ELECTRIC TOWERS AND LARGE POLES

Location Description	Number of Towers and Large Poles Within the Alignment Disturbance Limits	Maximum Number of Towers and Large Poles to be Relocated/Added (1)	Maximum Area of Temporary and Permanent Disturbance for Tower and Large Pole Relocation hectares (acres) (1)	Maximum Permanent Impact Area for Towers and Large Poles square meters (square feet) (1)	Maximum Permanent Impact Area for Utility Access Roads hectares (acres) (1)
			(15.9)	(400)	(2.2)
A7C-FEC-M-Initial					
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
A7C-FEC-M-Ultimate					
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
I-5 – No Tower/Large Pole Relocation					

1) Outside the disturbance limits for the alignments of the Build Alternatives.
Source: Corridor Design Management Group and P&D Consultants (2003).
SOSB – San Onofre State Beach

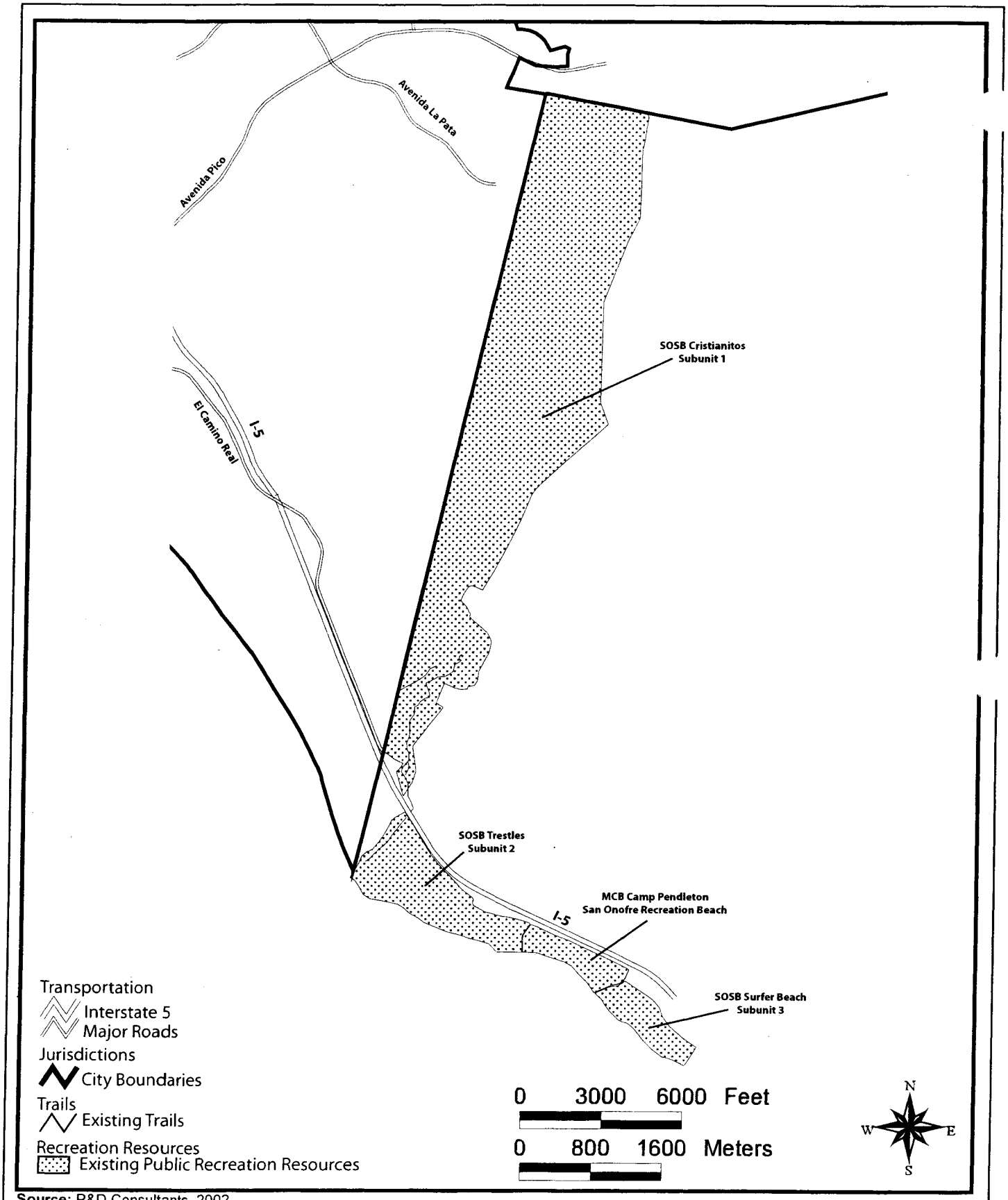
TABLE 4.21-38
RECREATION RESOURCES ON CAMP PENDLETON

Name and Address	Owner/Operator	Description
Existing Recreation Resources		
San Onofre State Beach (SOSB) Surfer Beach Subunit 3 West side of I- 5 along Old Pacific Coast Highway and north of the San Onofre Nuclear Power Station (SONGS).	United States Navy/California State Parks	A state park of approximately 31 ha (76 ac) southeast of the Basilone Road/I-5 interchange, immediately northwest of SONGS. Includes beach access, parking, showers, lifeguard towers, restroom and a park gate.
SOSB Trestles Beach Subunit 2 South of Cristianitos Road along beach side of I-5 to Camp Pendleton's San Onofre Recreation Beach area.	United States Navy/California State Parks	A state park of approximately 86 ha (213 ac) immediately south of the Cristianitos Road/I-5 interchange. Includes a pedestrian and bicycle trail and restrooms. It also includes a 33.2 hectare (82 acre) wetland preserve area.
SOSB Cristianitos Subunit 1 East of I-5 extending north to the Orange County border. The remainder of the Subunit parallels Cristianitos Road and includes the San Mateo Campground area and trails.	United States Navy/California State Parks	A state park of approximately 564 ha (1,393 ac) immediately northeast of the Cristianitos Road/I-5 interchange. Includes overnight camping, day camping, pedestrian and bicycle trails, showers/restroom, lifeguard towers and parking.
Camp Pendleton San Onofre Recreation Beach Between SOSB Subunit 2 and Subunit 3.	United States Navy/Camp Pendleton Marine Corps Community Services Department	A regional park of approximately 23 ha (57 ac) south of the Basilone Road/I-5 interchange, immediately southwest of I-5. Includes overnight camping, a clubhouse, lodging facilities, RV camping, a concessions stand, lifeguard towers, picnic areas and parking. Open only to active duty military personnel and military retirees, their families and friends. Not open to the public.

Notes:

[1] Refer to Figure 4.21-21 for the locations of these recreation resources.
[2] There are no proposed recreation resources in the SOCTIIP study area in unincorporated San Diego County.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2002.

Existing Recreation Resources on Camp Pendleton

TABLE 4.21-39
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

RESOURCE [1]	Area of Temporary Occupancy ha (ac)[2]	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)[2]	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
	FEC-W-INITIAL			**FEC-W-ULTIMATE**		
SOSB Cristianitos Subunit 1	28.7(71.1)	117.4(290.0)	Yes	30.6(75.6)	122.7(303.3)	Yes
SOSB Trestles Subunit 2	0.4(1.0)	3.4 (8.6)	No	0.4(1.1)	3.5 (8.8)	No
	FEC-M-INITIAL			**FEC-M-ULTIMATE**		
SOSB Cristianitos Subunit 1	28.6(70.8)	117.4(290.0)	Yes	30.6(75.4)	122.7(303.3)	Yes
SOSB Trestles Subunit 2	0.4(1.0)	3.4 (8.6)	No	0.4(1.0)	3.5 (8.8)	No
	CC-INITIAL			**CC-ULTIMATE**		
SOSB Cristianitos Subunit 1	0	1.1(2.7)	No	0	1.1(2.7)	No
	A7C-FEC-M-INITIAL			**A7C-FEC-M-ULTMATE**		
SOSB Cristianitos Subunit 1	28.6(40.8)	117.4(290.0)	Yes	30.5(75.4)	122.7(303.3)	Yes
SOSB Trestles Subunit 2	0.4(1.0)	3.4 (8.6)	No	0.4(1.1))	3.5 (8.8)	No
				I-5		
SOSB Cristianitos Subunit 1				0	1.1(2.8)	No
SOSB Trestles Subunit 2				--	--	--

Note: [1] Refer to Figure 4.21-22 for the locations of these resources.
[2] In addition to area of permanent acquisition. Following construction activities, these areas will be restored to their preconstruction condition.
Source: P&D Consultants (2003).

TABLE 4.21-40
INDIRECT IMPACTS ON RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

RESOURCE	INDIRECT IMPACTS OF THE FEC-W ALTERNATIVE
SOSB Cristianitos Subunit 1	Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: This resource could potentially experience short term adverse access impacts during construction. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
SOSB Trestles Subunit 2	At its closest point, this resource is 26 m (87 ft) from the centerline of the FEC-W Alternatives. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. This resource would not be subject to operational impacts because of the design of the Alternatives. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
MCB Camp Pendleton San Onofre Recreation Beach	At its closest point, this resource is 55 m (182 ft) from the centerline and 19 m (63 ft) from the disturbance limits of the FEC-W Alternatives. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.
	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.21-40
INDIRECT IMPACTS ON RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

SOSB Surfer Beach Subunit 3	At its closest point, this resource is 175 m (575 ft) from the centerline and 124 m (408 ft) from the disturbance limits of the FEC-W Alternatives. Noise: This Alternative would not have any operational impacts on this resource. This resource would be subject to adverse construction noise impacts from this Alternative. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
	INDIRECT IMPACTS OF THE FEC-M ALTERNATIVE
SOSB Cristianitos Subunit 1	Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: This resource could potentially experience short term adverse access impacts during construction. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
SOSB Trestles Subunit 2	At its closest point, this resource is 26 m (87 ft) from the centerline of the FEC-M Alternatives. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. This resource would not be subject to operational impacts because of the design of the Alternatives. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.21-40
INDIRECT IMPACTS ON RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

MCB Camp Pendleton San Onofre Recreation Beach	At its closest point, this resource is 55 m (182 ft) from the centerline and 19 m (63 ft) from the disturbance limits of the FEC-M Alternatives. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
SOSB Surfer Beach Subunit 3	At its closest point, this resource is 175 m (575 ft) from the centerline and 124 m (408 ft) from the disturbance limits of the FEC-M Alternatives. Noise: This Alternative would not have any operational impacts on this resource. This resource would be subject to adverse construction noise impacts from this Alternative. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
	INDIRECT IMPACTS OF THE CC ALTERNATIVE
SOSB Cristianitos Subunit 1	Noise: This resource would be subject to construction and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.21-40
INDIRECT IMPACTS ON RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

	INDIRECT IMPACTS OF THE A7C-FEC-M ALTERNATIVE
SOSB Cristianitos Subunit 1	Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: This resource could potentially experience short term adverse access impacts during construction. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
SOSB Trestles Subunit 2	At its closest point, this resource is 26 m (87 ft) from the centerline of the A7C-FEC-M Alternatives. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. This resource would not be subject to operational impacts because of the design of the Alternatives. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
MCB Camp Pendleton San Onofre Recreation Beach	At its closest point, this resource is 56 m (183 ft) from the centerline and 19 m (63 ft) from the disturbance limits of the A7C-FEC-M Alternatives. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

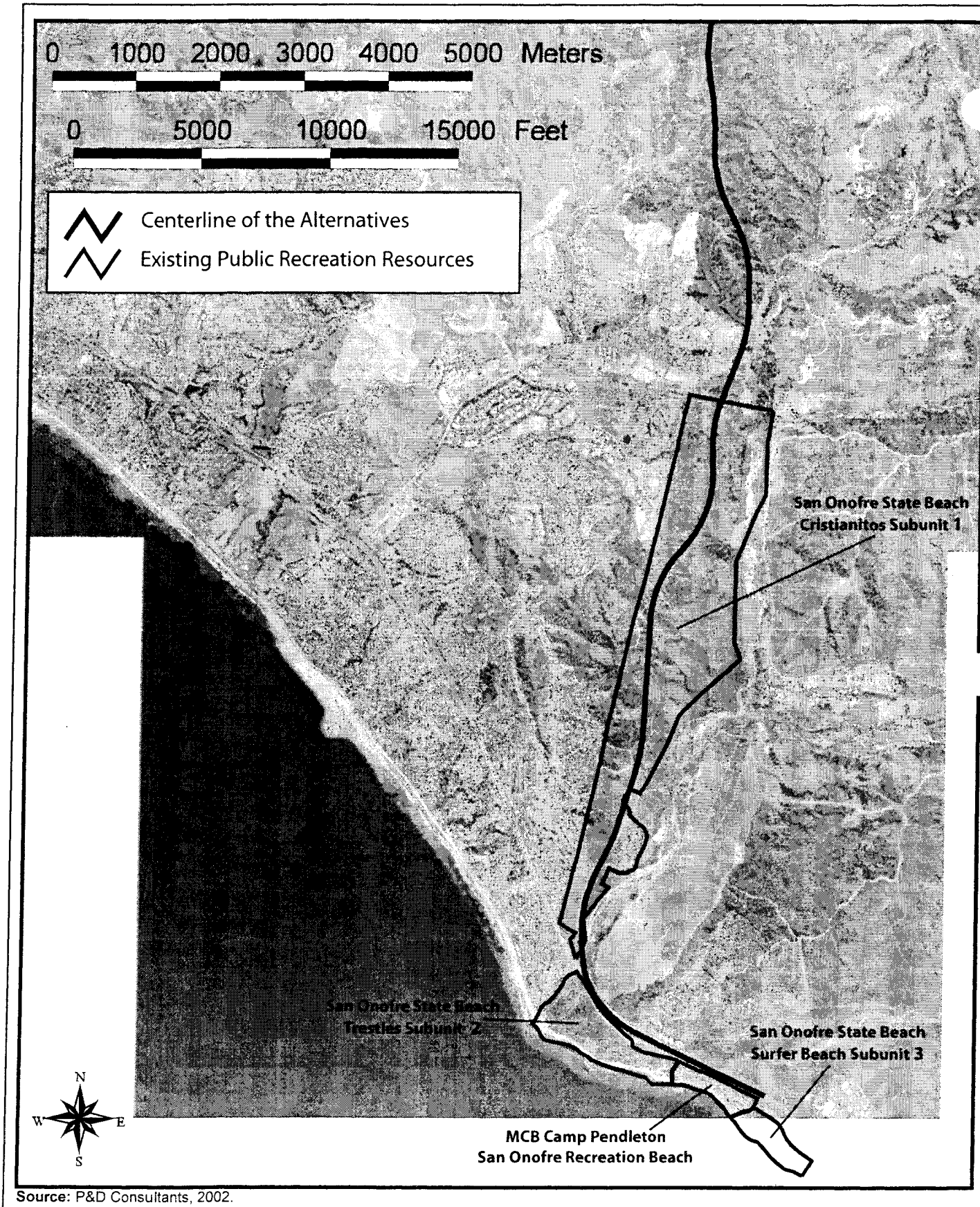
TABLE 4.21-40
INDIRECT IMPACTS ON RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

SOSB Surfer Beach Subunit 3	At its closest point, this resource is 175 m (575 ft) from the centerline and 124 m (408 ft) from the disturbance limits of the A7C-FEC-M Alternatives. Noise: This Alternative would not have any operational impacts on this resource. This resource would be subject to adverse construction noise impacts from this Alternative. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
SOSB Cristianitos Subunit 1	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
SOSB Trestles Beach Subunit 2	At its closest point, this resource is 35 m (115 ft) from the centerline and 365 m (1,198 ft) from structures of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource is would be subject to adverse pile driving noise impacts, but would not be subject to adverse construction noise. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

TABLE 4.21-40
INDIRECT IMPACTS ON RECREATION RESOURCES ON CAMP PENDLETON UNDER THE SOCTIIP ALTERNATIVES

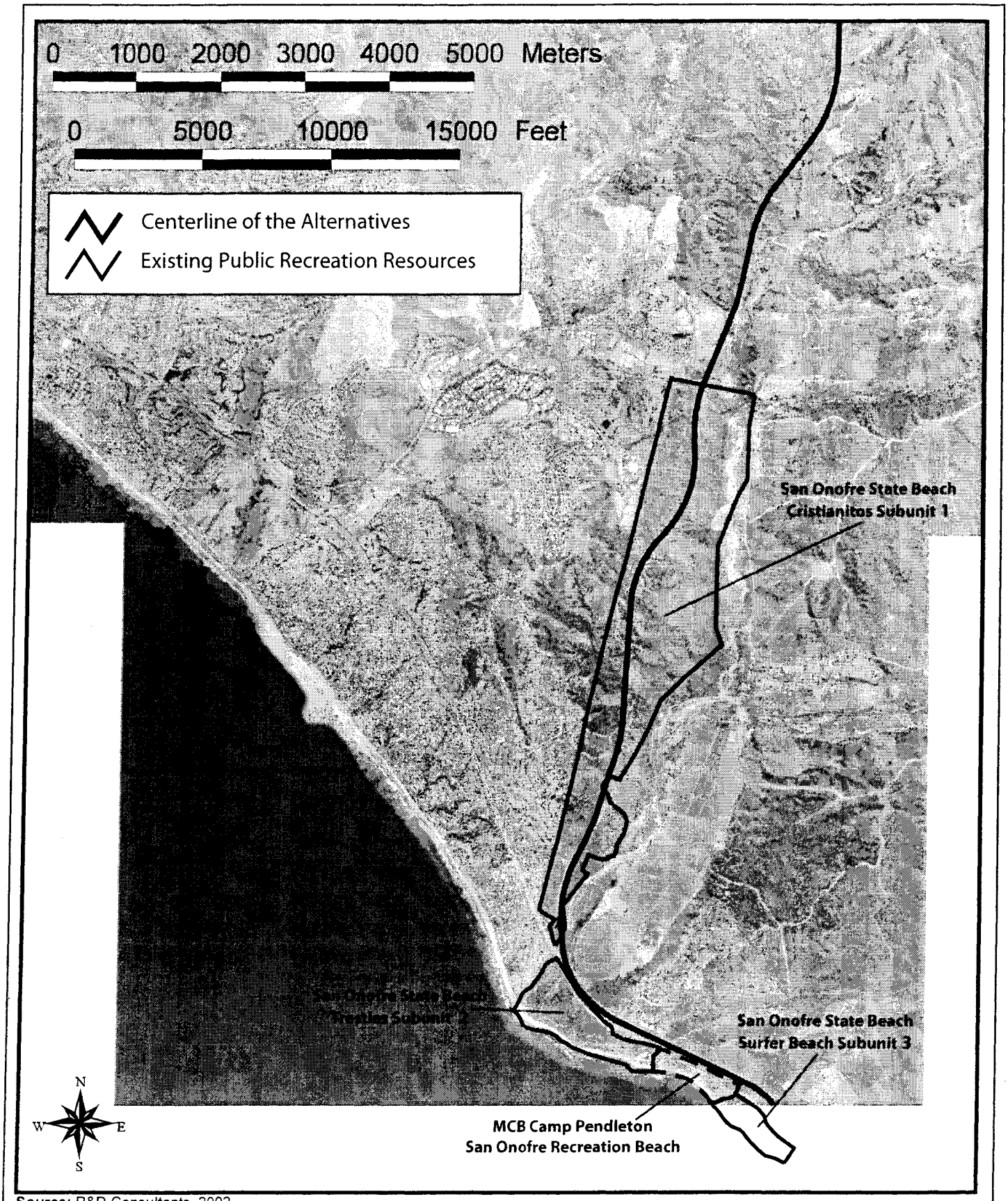
	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).



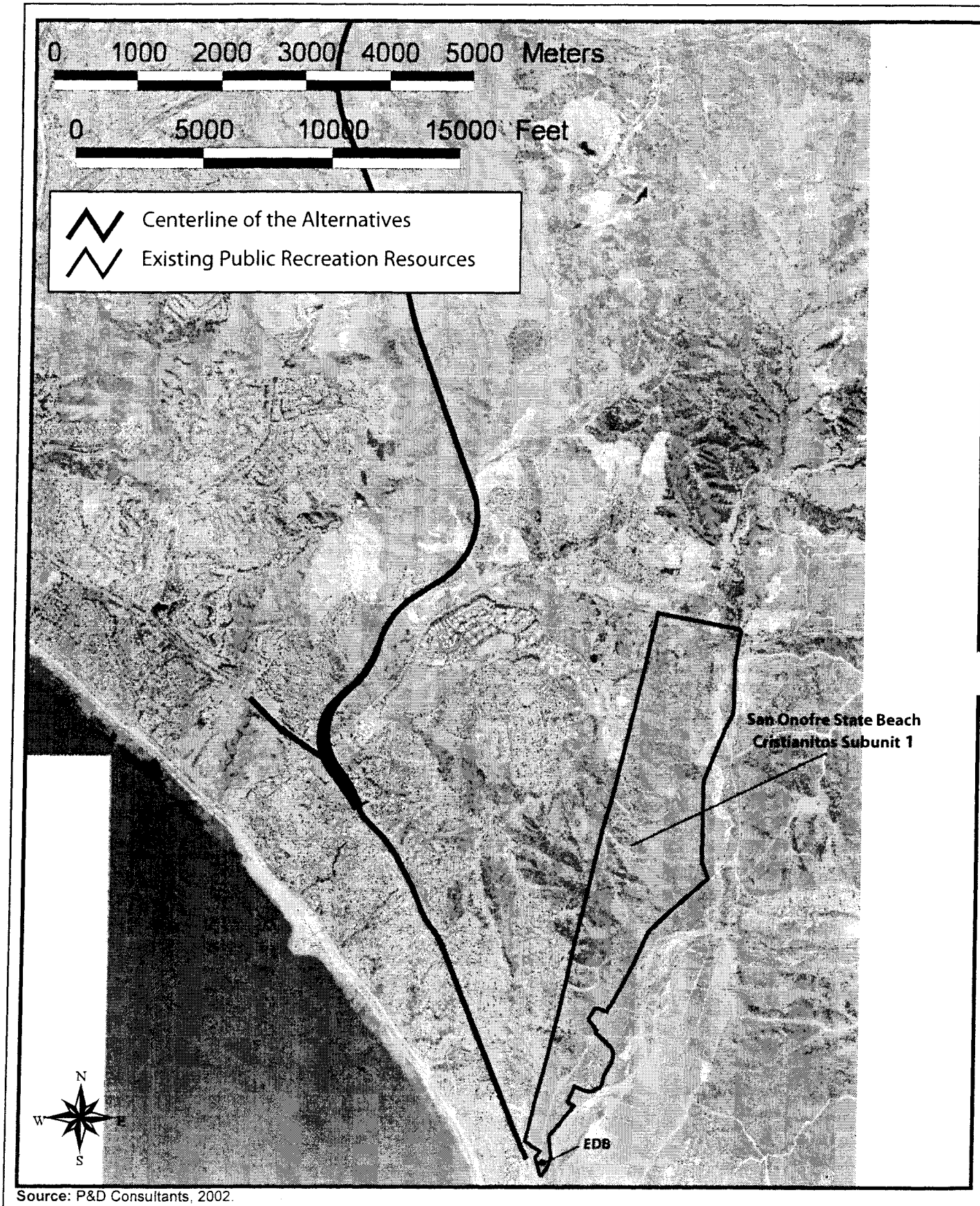
Source: P&D Consultants, 2002.

Recreation Resources on Camp Pendleton for the FEC-W Alternative



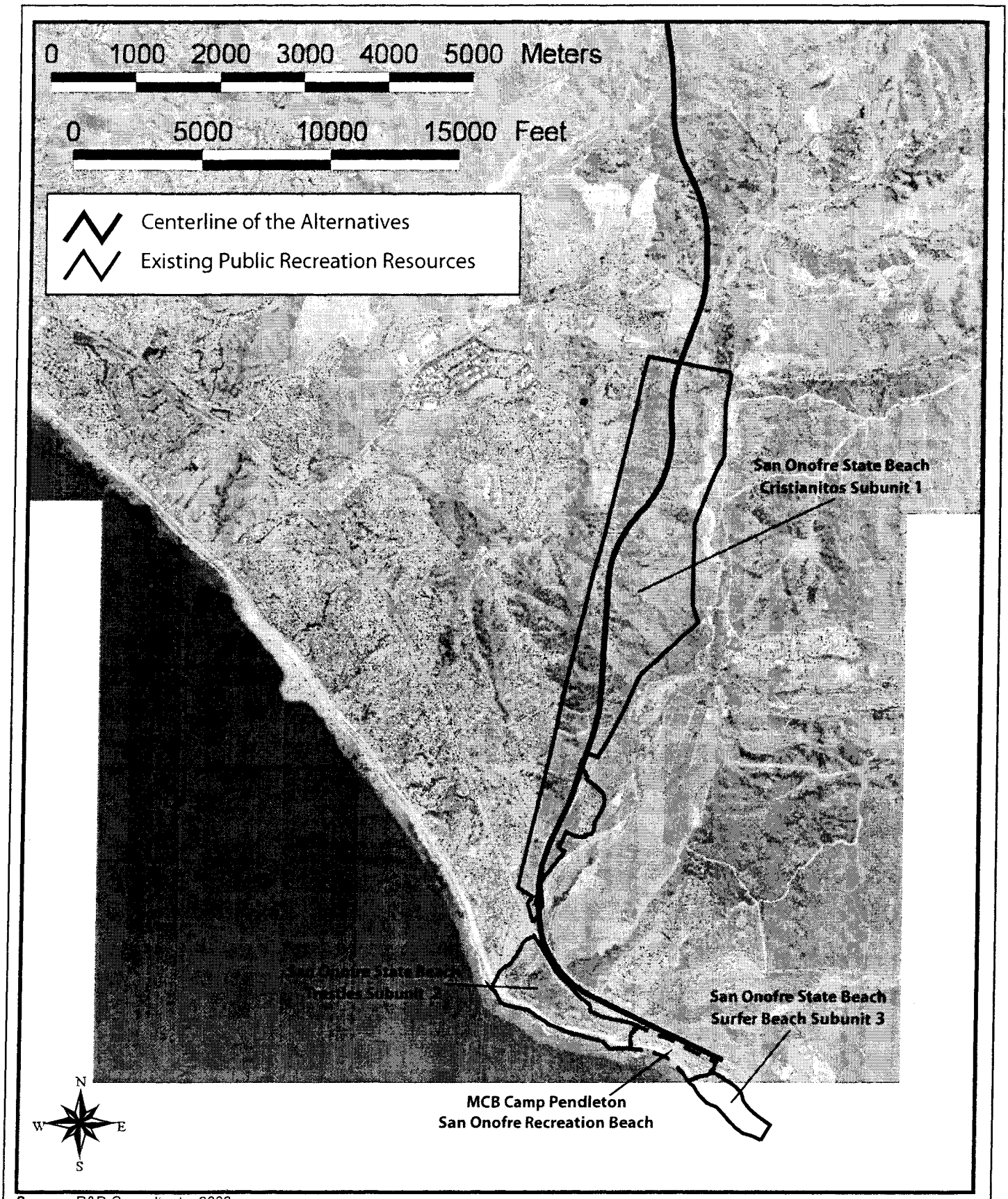
Source: P&D Consultants, 2002.

Recreation Resources on Camp Pendleton for the FEC-M Alternative



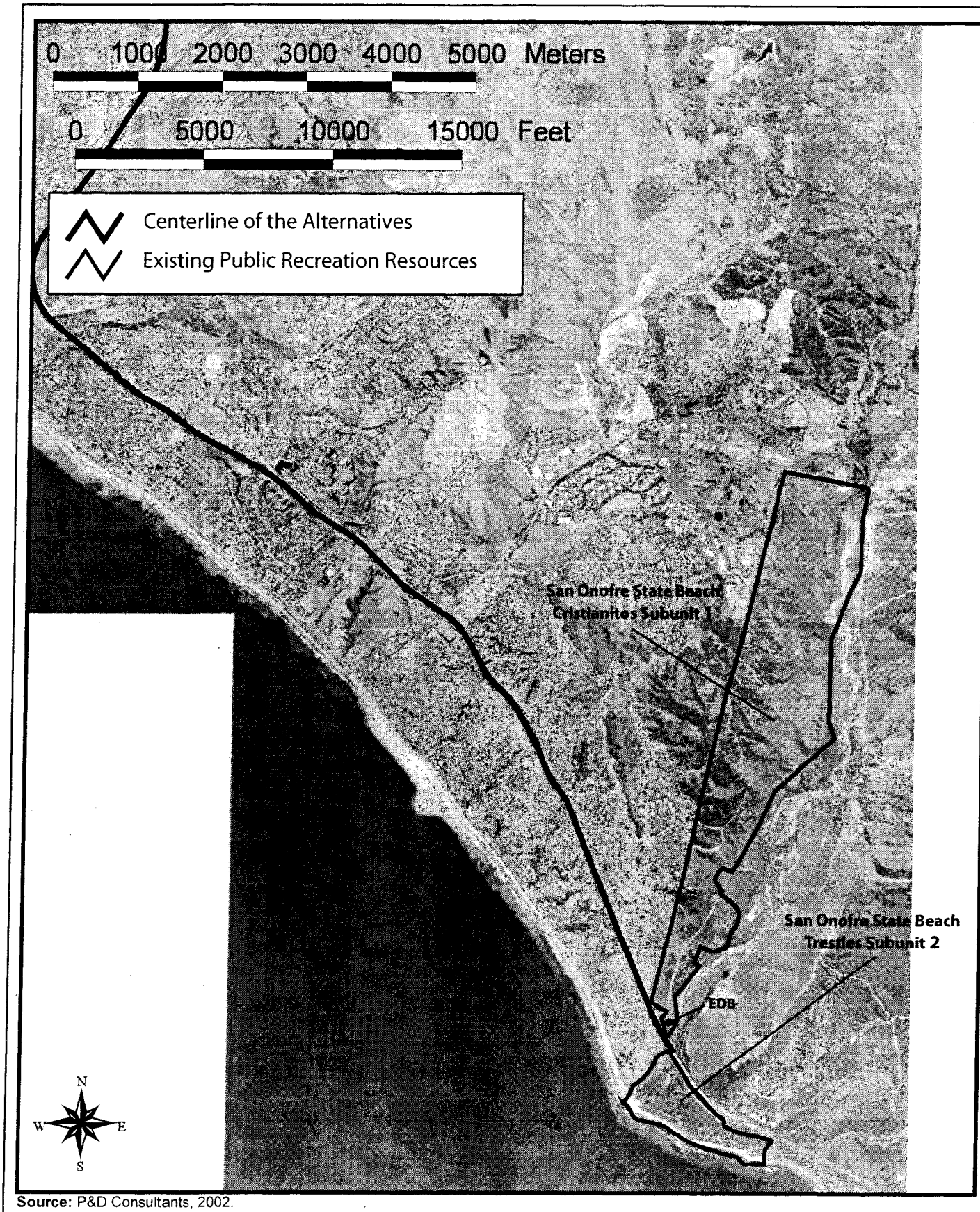
Source: P&D Consultants, 2002.

Recreation Resources on Camp Pendleton for the CC Alternative



Source: P&D Consultants, 2002.

Recreation Resources on Camp Pendleton for the A7C-FEC-M Alternative



Source: P&D Consultants, 2002.

Recreation Resources on Camp Pendleton for the I-5 Alternative

TABLE 4.21-41
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE FEC-W AND FEC-M ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)	
	FEC-W Alternative	FEC-M Alternative
SOSB Cristianitos Subunit 1	R-1, R-2, R-3 and R-4. Construction and operations noise mitigation. Air quality mitigation. Visual impacts mitigation.	R-1, R-2, R-3 and R-4. Construction and operations noise mitigation. Air quality mitigation. Visual impacts mitigation.
SOSB Trestles Subunit 2	R-1, R-2, R-3 and R-4. Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.	R-1, R-2, R-3 and R-4. Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.
MCB Camp Pendleton San Onofre Recreation Beach	Construction and operations noise mitigation. Air quality mitigation. Visual impacts mitigation.	Construction and operations noise mitigation. Air quality mitigation. Visual impacts mitigation.
SOSB Surfer Beach Subunit 3	Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.	Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.

Notes:
1. The complete text for measures R-1 to R-5 is provided in Section 4.21.26.4 (Mitigation for Recreation Resources Related to the Military Mission).
2. Construction and operations noise mitigation measures are provided in Section 4.6.4.
3. Visual impacts mitigation measures are provided in Section 4.18.4
4. Air quality impacts construction mitigation is provided in Section 4.7.4.

Source: P&D Consultants (2003).

TABLE 4.21-42
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE CC ALTERNATIVE

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)
	CC Alternative
SOSB Cristianitos Subunit 1	R-1, R-2, R-3 and R-4. Construction noise mitigation. Visual impacts mitigation.

Notes:
1. The complete text for measures R-1 to R-5 is provided in Section 4.21.26.4 (Mitigation for Recreation Resources Related to the Military Mission).
2. Construction and operations noise mitigation measures are provided in Section 4.6.4.
3. Visual impacts mitigation measures are provided in Section 4.18.4.
4. Air quality impacts construction mitigation is provided in Section 4.7.4.

Source: P&D Consultants (2003).

TABLE 4.21-43
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE A7C-FEC-M ALTERNATIVE

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)
	A7C-FEC-M Alternative
SOSB Cristianitos Subunit 1	R-1, R-2, R-3 and R-4. Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.
SOSB Trestles Subunit 2	R-1, R-2, R-3 and R-4. Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.
MCB Camp Pendleton Green Beach	Construction and operations noise mitigation. Visual impacts mitigation.
SOSB Surfer Beach Subunit 3	Construction noise mitigation. Air quality mitigation. Visual impacts mitigation.

Notes:
1. The complete text for measures R-1 to R-5 is provided in Section 4.21.26.4 (Mitigation for Recreation Resources Related to the Military Mission).
2. Construction and operations noise mitigation measures are provided in Section 4.6.4.
3. Visual impacts mitigation measures are provided in Section 4.18.4.
4. Air quality impacts construction mitigation is provided in Section 4.7.4.

Source: P&D Consultants (2003).

TABLE 4.21-44
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE AND I-5 ALTERNATIVE

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)
	I-5 Alternative
SOSB Cristianitos Subunit 1	R-1, R-2, R-3 and R-4. Construction noise mitigation. Air quality mitigation.
SOSB Trestles Subunit 2	Construction noise mitigation. Air quality mitigation.

Notes:
1. The complete text for measures R-1 to R-5 is provided in Section 4.21.26.4 (Mitigation for Recreation Resources Related to the Military Mission).
2. Construction and operations noise mitigation measures are provided in Section 4.6.4.
3. Visual impacts mitigation measures are provided in Section 4.18.4.
4. Air quality impacts construction mitigation is provided in Section 4.7.4.

Source: P&D Consultants (2003).

TABLE 4.21-45
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO.3

Mitigation Measures From EIR No.3	Proposed Status
Measure 61 – Military Uses. Concurrent with subsequent NEPA documentation, the TCA, in coordination with MCB Camp Pendleton, shall develop a detailed mitigation program. This mitigation program shall address protection of the aquifer (including the development of perk ponds and a water line interconnection), potential water quality impacts, provision of tank crossings, and full access by the marines to base property. The TCA shall enter into a memorandum of understanding (MOU) with MCB Camp Pendleton regarding implementation and timing of the mitigation program.	This measure has been incorporated in current measure WQ1-11.
Measure 62 – Military Uses. In conjunction with the final design, the TCA shall determine the location and design of a berm to be constructed in the vicinity of the Village of Panhe to protect the extensive archaeological work that has been performed.	This measure has been incorporated in current measure AR-4.
Measure 63 – Military Uses. In conjunction with the final project design, the TCA shall be designed to permit the crossing of amphibious vehicles. Specific geometric requirements shall be coordinated with MCP Camp Pendleton.	This measure has been incorporated in current measure M-5.
Measure 64 – Military Uses. In conjunction with the final design, the TCA shall include provisions for a pedestrian security fence to be located on the eastern right of way line of the FTC. The security fence shall be installed prior to operation of the corridor.	This measure has been incorporated in current measure M-6.

Source: P&D Consultants (2003).

4.22 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION MEASURES RELATED TO MINERAL RESOURCES

The potential impacts of the various SOCTIIP Alternatives on mineral resources are evaluated in detail in the Geotechnical, Geology and Soils Technical Report (GeoPentech, Inc., 2003) and are summarized in this Section. Refer to the Table of Contents for locations where this Technical Report is available for review or purchase.

4.22.1 AFFECTED ENVIRONMENT RELATED TO MINERAL RESOURCES

Mineral resources have been mined at various locations in the vicinity of the SOCTIIP build alternatives (including the FEC-W, FEC-M, CC, CC-ALPV, A7C-ALPV, A7C-FEC-M, AIO and I-5 Alternatives), as described in the following Sections.

4.22.1.1 Mineral Resources and Construction Materials

Rock Aggregates

The alluvial sand and gravel deposits in San Juan Creek have been mined for construction aggregate materials in the vicinity of where the alignments of the SOCTIIP build Alternatives cross San Juan Creek.

Petroleum

Petroleum exploration in the general area of the SOCTIIP build Alternatives continued as late as the 1950s, as described by the California Division of Mines and Geology (CDMG, 1974). Two abandoned oil fields are near the alignments: 1) the San Clemente field, immediately east of the A7C-ALPV and A7C-FEC-M alignments and crossed by the CC and CC-ALPV alignment, north of Avenida Pico, and 2) the Cristianitos Creek field, west of the FEC-W and FEC-M alignments and the San Diego/Orange County boundary, and south of the present eastern terminus of Avenida La Pata. No production was recorded from these fields, although CDMG (1974) indicated that good possibilities for productive wells may exist in these and adjacent areas, from structural traps associated with the Cristianitos and Mission Viejo Faults.

Silica Sand

Owens-Illinois (now Oglebay Norton Industrial Sand) has produced silica sand from the lower beds of the Santiago Formation in Trampas Canyon, south of Ortega Highway about midway between the FEC and the CC alignments.

Clay

There are past clay mining excavations, prospecting pits and short tunnel excavations in the Claymont Clay bed of the Silverado Formation, immediately adjacent to and near the FEC alignments in Cristianitos Canyon, south of Ortega Highway.

Expanded Aggregate

Light-weight aggregate was produced in the 1960s from the Capistrano Formation, on the west side of Prima Deshecha about 3.2 km (2 mi) west of the A7C alignments.

4.22.2 METHODOLOGY RELATED TO MINERAL RESOURCES

4.22.2.1 Data Sources

The 1996 report by Goffman, McCormick & Urban provided basic geotechnical, geology and soils data for the previous two primary alignments considered for the SOCTIIP (the BX and CP alignments, now the CC and FEC alignments, respectively). The data available in that report were supplemented, using more recently published information, and specifically, the site-specific studies recently performed by the TCA for the various SOCTIIP build Alternatives.

4.22.2.2 Identification of Mineral Resources

CDMG (now known as the California Geological Survey – CGS) provides guidance in preparing geologic input to environmental reports. For this EIS/SEIR, that checklist, titled "Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports" (Note 46, 1975) was used. A summary of that checklist of issues related to mineral resources issues is provided below:

- Loss of Mineral Resources - Loss of access, deposits covered by changed land use and zoning restrictions.

According to the Resources Element of the Orange County General Plan, the Surface Mining and Reclamation Act (SMARA) mandates of 1975 are recognized in the General Plan, but since there are no specific conservation policies regarding mineral resources, these guidelines provided by CGS were the only ones used to prepare this EIS/SEIR.

There is a continued need for natural resources, such as petroleum products for fuels, and building materials for roads and structures. With time, existing resources are depleted and new sources must be identified and mined to support continued needs. As more and more land is developed, additional pressure is placed on assuring an adequate supply of natural resources. Therefore, it is important that each proposed project be evaluated, to determine whether it might preclude access to an important resource, change the land use so that a resource can no longer be removed or create zoning restrictions so that access to the resource is no longer allowed.

For the SOCTIIP Alternatives, loss of access, deposits covered by changed land use and zoning restrictions were evaluated relative to the potential for the environment to adversely impact the proposed project, and the project's potential impact on the environment related to the SOCTIIP Alternatives. Table 4.22-1 provides a list of the basic considerations related to mineral resources used in reviewing/evaluating these issues related to the SOCTIIP Alternatives. Tables cited in this Section are provided following the last page of text in this Section.

4.22.3 IMPACTS RELATED TO MINERAL RESOURCES

4.22.3.1 Construction Impacts Related to Mineral Resources

Loss of Access

The SOCTIIP build Alternatives would not preclude access to known or currently operational mineral resources or extraction activities. Therefore, there are no impacts associated with access to mineral resources under these Alternatives.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not preclude access to any known or currently operational mineral resources. Therefore, the No Action Alternatives would not result in the any impacts related to access to mineral resources.

Deposits Covered by Changed Land Use Conditions

All the SOCTIIP corridor Alternatives extend across San Juan Creek, where there are known, and previously mined, aggregate resources. Where embankments and/or bridge footings would be constructed, direct access to these deposits would be precluded in the future. In addition, depending on the configuration of bridge foundations (i.e., whether foundations extend to bedrock), the SOCTIIP corridor Alternatives could be adversely affected by future downstream mining activities, if such mining were permitted. Therefore, the SOCTIIP corridor Alternatives would reduce, by a minimal amount, the availability of aggregate resources in the San Juan Creek area. No other known mineral resources would be impacted by the SOCTIIP corridor Alternatives.

The other build Alternatives (AIO, I-5) would not cross this part of San Juan Creek and, therefore, would not impact mineral resources as a result of changed land use conditions.

The A7C-FEC-M Alternative crosses near the existing Olgebay Norton quarry operations in Trampas Canyon. Based on discussions with Olgebay Norton staff, it is unlikely that the project would adversely impact their operations, which are permitted through the year 2013. Quarry operations could continue beyond 2013, if the existing lease from the property owners (RMV) is extended or a new lease is granted. Additional sand resources have not been investigated and proven. As a result, project construction is not considered to be an impact to the available mineral resource.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not reduce the availability of mineral resources. Therefore, the No Action Alternatives would not result in impacts related to mineral resources.

Zoning Restrictions

The SOCTIIP corridor Alternatives do not include zoning changes that would limit access or availability of known mineral resources. Therefore, there are no impacts on mineral resources related to changes in zoning restrictions under these Alternatives.

The No Action Alternatives would not result in the construction of any SOCTIIP related transportation improvements and would not require zoning changes that would limit access or availability of known mineral resources. Therefore, the No Action Alternatives would not result in the any impacts related to mineral resources.

4.22.3.2 Long Term Impacts Related to Mineral Resources

The long term impacts related to mineral resources under the SOCTIIP build and No Action Alternatives would be the same as discussed for those Alternatives in Section 4.22.3.1 (Construction Impacts Related to Mineral Resources).

4.22.3.3 Summary of Impact Related to Mineral Resources

Considering the geologic conditions present, and the same design and construction assumptions regarding the project, some of the SOCTIIP corridor Alternatives share the same potential impacts as described earlier, a minor impact related to the availability of mineral resources in San Juan Creek. The AIO and I-5 Alternatives extend across San Juan Creek, but there are no known, and previously mined, aggregate resources where these Alternatives cross San Juan Creek. Even though the A7C-FEC-M Alternative crosses near the existing Oglebay Norton quarry operations, construction is not considered an impact. Table 4.22-2 summarizes the impacts of the SOCTIIP Alternatives related to mineral resources.

4.22.4 MITIGATION MEASURES RELATED TO MINERAL RESOURCES

Mitigation measures were provided in the Mitigation Monitoring Program (MMP) for Final Environmental Impact Report No. 3 (EIR No. 3) for the Foothill Transportation Corridor – Oso Parkway to Interstate 5, to minimize the impacts to mineral resources identified for the alignments analyzed in that EIR. All the mitigation measures in the MMP for EIR No. 3 were reviewed and have been incorporated, as applicable, in the mitigation measures for the SOCTIIP alternatives. Table 4.22-3 lists the mitigation measures from the MMP in EIR No. 3 and provides the proposed status for each measure. If the measure has been incorporated into a SOCTIIP mitigation measure, the new mitigation measure number is provided.

For evaluating the SOCTIIP Alternatives, certain assumptions were made relative to design and construction. For this evaluation, it is assumed that standard investigation, design and construction practices would be implemented for the project Alternatives. As is common on similar projects, the implementation of these standard practices will have the effect of mitigating many, but not all, of the potential mineral resources related impacts.

In some cases, adverse impacts cannot be mitigated through standard investigation, design and construction. For example, construction over a sand and gravel resource area would result in making these mineral resources unavailable in the future. This would be the case for the SOCTIIP corridor Alternatives that impact mineral resources in the San Juan Creek. Mitigation for this impact is provided by compliance with the Uniform Relocation Assistance and Real Property Acquisition Polices Act of 1970, as discussed in Section 4.4 (Socioeconomics and Environmental Justice). For a detailed discussion, refer to measure SE-2 (Property Acquisition and Relocation Assistance). Table 4.22-4 lists the SOCTIIP Alternatives and the applicability of measure SE-2 to each alternative.

TABLE 4.22-1
CRITERIA FOR MINERAL RESOURCES

Geologic Resource	Issue	Impact of the SOCTIIP Alternatives on Mineral Resources
Loss of Mineral Resources	Loss of Access	Would project development result in loss of access to a mineral resources?
	Deposits covered by Changed Land Use Conditions	Would project development cover extractable mineral resource?
	Zoning Restrictions	Is the project located within an area zoned for mineral extraction?

Source: GeoPentech (2003).

TABLE 4.22-2
SUMMARY OF IMPACTS RELATED TO MINERAL RESOURCES

Alternative	Loss of Access	Deposits Covered By Changed Land Use	Zoning Restrictions
FEC-W	No impact.	Slight reduction in area where resources can be obtained.	No impact.
FEC-M	No impact.	Slight reduction in area where resources can be obtained.	No impact.
CC	No impact.	Slight reduction in area where resources can be obtained.	No impact.
CC-ALPV	No impact.	Slight reduction in area where resources can be obtained.	No impact.
A7C-ALPV	No impact.	Slight reduction in area where resources can be obtained.	No impact.
A7C-FEC-M	No impact.	Slight reduction in area where resources can be obtained. No impacts to quarry operations nearby.	No impact.
AIO	No impact.	No impact.	No impact.
I-5	No impact.	No impact.	No impact.
No Project-OCP-2000	No impact.	No impact.	No impact.
No Project-RMV	No impact.	No impact.	No impact.

Source: GeoPentech (2003).

TABLE 4.22-3
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO.3

Mitigation Measures from EIR No. 3	Proposed Status
Measure 43 – Land Use. Any property required as right-of-way for the selected alignment will be acquired by the TCA in conformance with Section 301 of the Uniform Relocation Assistance and Real Property Act of 1970, Public law 91-646; Chapter 16 of Provision 7 of Title 1 of the Government Code; and Title 25, Chapter 6, of the California Administrative Code.	This measure has been incorporated into current measure SE-2.

Source: P&D Consultants (2003)

TABLE 4.22.4
SUMMARY OF THE APPLICABILITY OF THE MITIGATION MEASURE BY ALTERNATIVE FOR MINERAL RESOURCES

Alternative	SE-2
Corridor Alternatives	
A7C-ALPV	✓
A7C-FEC-M	✓
CC	✓
CC-ALPV	✓
FEC-M	✓
FEC-W	✓
Non-Corridor Alternatives	
AIO	--
I-5	--
No Action Alternatives	
OCP-2000	--
RMV Development Plan	--

Legend: ✓= Mitigation measure applies to Alternative.
--= Mitigation measure does not apply to Alternative.
Source: GeoPentech (2003).

4.23 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION MEASURES RELATED TO PALEONTOLOGICAL RESOURCES

This Section summarizes the SOCTIIP Paleontological Resources Technical Report (SWCA Environmental Consultants, 2003). Refer to the Table of Contents for locations where this Technical Report is available for review or purchase.

4.23.1 AFFECTED ENVIRONMENT RELATED TO PALEONTOLOGICAL RESOURCES

The study area for paleontologic resources is the area within the right-of-way and construction disturbance limits for the SOCTIIP build Alternatives. This study area is in the southwestern foothills of the Santa Ana Mountains, in the Peninsular Ranges geomorphic province of Southern California. This geomorphic province is a 1,450 km (900 mi) northwest-southeast trending structural block that extends from the southern tip of Baja California to the Transverse Ranges, and includes the Greater Los Angeles Basin. The Santa Ana Mountains are reported to have the most complete exposed section of Late Mesozoic and Cenozoic (~150 million years ago to the present) stratigraphy (the arrangement of strata in a geologic unit) in the entire Peninsular Ranges. Due to the completeness of the geologic record and the general abundance of fossils, the sedimentary deposits in southern Orange County are considered to be one of the most important Tertiary marine fossil-producing areas in the world. Sedimentary rock is rock that is formed through the accumulation and cementation of mineral grains.

The underlying geologic structure of the study area consists of a sequence of upper Cretaceous to Pliocene sedimentary rock units that are generally inclined to the west. Movement along the Cristianitos and Mission Viejo Faults, which are the dominant structural features of the area, has caused much variation in this westward-dipping trend due to localized folding and faulting. In the Plano Trabuco area (City of Rancho Santa Margarita), terrace deposits ranging from an estimated 34,000 to 125,000 years in age have not been ruptured where they overlie the eastern branch of the Cristianitos Fault. This indicates that the Cristianitos Fault is not currently active. The shorter Mission Viejo Fault, located roughly parallel to and about 3.2 km (2 mi) east of the Cristianitos Fault, is reported as being potentially active, based on the possibility that terrace deposits may have been displaced in the San Juan Creek area.

A geologic formation is a mappable rock unit that is differentiated from others based on its physical (lithologic) characteristics. Fossils are incorporated into the rock record by the same processes that result in the deposition of sediments. After death, remains of living organisms decay and then are transported, buried, altered by chemical or physical processes, and eventually exposed by natural erosion or man-made processes. Various geologic formations have differing potential to produce scientifically significant fossils. Table 4.23-1 includes the rock units exposed in the SOCTIIP study area, a summary of the types of fossils that potentially occur in the unit and the age of each rock unit. Tables cited in this Section are provided following the last page of text in this Section.

4.23.2 METHODOLOGY RELATED TO PALEONTOLOGICAL RESOURCES

4.23.2.1 Review of Existing Literature and Geological Maps

Existing literature pertinent to paleontological resources in, or in the vicinity of, the SOCTIIP study area was reviewed. The study area is defined as the area within the right-of-way and the construction disturbance limits for the SOCTIIP build Alternatives. The literature reviewed was:

- Paleontological resource studies previously conducted by SWCA Environmental Consultants, Inc. (formerly RMW Paleo Associates, Inc.)
- Published paleontological and geologic literature and maps.
- Previous documentation prepared for and by the TCA for the SOCTIIP build Alternatives and documents relating to other toll road projects in Orange County.
- Reports on file at the Orange County Clearinghouse. The Clearinghouse is a warehouse facility at Orange County's records complex in Santa Ana, and serves as the official repository for fossils collected within Orange County.

The goals of the literature search were to:

- Identify the geologic formations that would potentially be impacted by construction of the SOCTIIP Alternatives.
- Summarize the lithologic descriptions of each formation.
- Summarize the known paleontological resources for each formation as reported in the literature.
- Provide a synthesis of the paleontological sensitivity ratings previously assigned to these rock units in Orange County.

4.23.2.2 Record Searches of Known Fossil Localities

Record searches of known fossil localities in, or in the vicinity of, the study area for the SOCTIIP Alternatives were conducted at the following repositories:

- Natural History Museum of Los Angeles County, Vertebrate Paleontology and Invertebrate Paleontology Sections.
- San Diego Natural History Museum.
- San Bernardino County Museum.

- Orange County Fossil Locality Maps at the Orange County Clearinghouse. The Clearinghouse is a warehouse facility at Orange County's records complex in Santa Ana, and has served as a repository for fossils collected in Orange County since 1978.

The goal of the record searches was to identify previously known paleontological localities in the SOCTIIP study area and the immediate vicinity. The exact coordinates of fossil localities are usually not published and are often not released by museums or other institutions, due to confidentiality issues. Therefore, it may not be possible to accurately determine the number of recorded fossil localities that are actually in the SOCTIIP study area or within the disturbance limits for the SOCTIIP build Alternatives.

4.23.2.3 Assessment Field Survey

A field reconnaissance survey was conducted by Orange County Certified Paleontologist, Cara Burres-Jones of SWCA Environmental Consultants (SWCA) and SWCA Program Director of Paleontology, Cara Corsetti, between March 8 and May 12, 2001, August 10 and 30, 2001, and February 5 and 22, 2002. The goal of the field survey was to field check the presence and location of fossiliferous geologic formations, and to locate and document any paleontological resources currently exposed within the disturbance limits of the SOCTIIP build Alternatives.

The survey methodology consisted of:

(1) Walking transects along bedrock outcrops and moderately vegetated areas along the staked alignments.

(2) Visually examining bedrock outcrops for exposed fossil remains.

(3) Documenting the location of any exposed fossils with Global Positioning System (GPS) technology.

(4) Plotting the locations of exposed fossils on a topographic map.

The results of the field survey were constrained by:

- The limits of disturbance for the build Alternatives. Specifically, areas outside the build disturbance limits were not surveyed. Fossils located outside the disturbance limits are not expected to be impacted by SOCTIIP related construction activities, and therefore were not considered in this study.

- The amount of vegetative ground cover, which limited visibility of, and in some cases accessibility to, surficial bedrock exposures and any fossil remains which may have been present at the surface. As an example, previous workers have also reported that vegetative cover on the Capistrano and Monterey Formations in the Prima Deshecha area can be 95 to 99 percent during certain times of the year.

4.23.2.4 Paleontological Sensitivity Map

The findings of the literature search, records search and field survey were analyzed according to established guidelines of paleontological sensitivity and compiled into a Paleontological Sensitivity Map. The Paleontological Sensitivity Map summarizes the distribution of zones of High, Moderate, Low, Indeterminate and No potential for the discovery of significant fossil remains in the SOCTIIP study area. This map is not provided in this EIS/SEIR to protect potentially fossil bearing formations from vandalism and unauthorized fossil collecting. This map is available for review by qualified professionals at the TCA office. The following Section discusses the assignment of paleontological sensitivity levels.

4.23.2.5 Determination of Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic formation to produce scientifically significant fossils. Geological formations can be viewed in a general sense as proxies for the fossils found in them. However, it is impossible to predict the specific types of fossils that will be found or their exact locations in a geologic formation. Therefore, the sensitivity determination does not measure the significance of individual fossils that may be found during construction activities in the study area. The scientific significance of an individual fossil can only be determined after it is discovered and subsequently evaluated by a qualified paleontologist. In addition, any paleontological site which produces significant fossil remains is considered highly significant, regardless of the initial paleontological sensitivity assigned to the rock unit in which the site occurs. Sensitivity assessments of geologic formations can change over time as increased knowledge of formations and their levels of productivity for paleontological resources becomes available.

Paleontological sensitivity levels were assigned to geologic formations in the SOCTIIP study area based on current knowledge of the fossils known from those formations and their scientific significance. This classification system for paleontological sensitivity is described in the following Sections:

<u>High Sensitivity</u>

High sensitivity rock units are known to produce significant fossil remains. Rock units from which vertebrate, important invertebrate fossils or notable assemblages of plant fossils have been recovered that are either rare, well-preserved, important for stratigraphic, paleoenvironmental, paleobiologic or phylogenetic interpretation, or are considered to have a high to very high potential for containing non-renewable paleontological resources are assigned a high sensitivity. In general, highly sensitive formations produce vertebrate fossil remains or are considered to have the potential to produce such remains.

<u>Moderate Sensitivity</u>

Moderate sensitivity is assigned to geologic formations known to yield significant fossils on a rare basis or formations that contain paleontological localities with poorly preserved, common elsewhere or stratigrapically unimportant fossil material. The moderate sensitivity category is

also applied to geologic formations that are judged to have a strong, but unproven, potential for producing significant fossil remains.

Low Sensitivity

Low sensitivity is assigned to rock units that are judged unlikely to produce significant fossil remains because of a low fossil occurrence, extreme youth of the rock unit (i.e., very recent alluvium), and/or the method of rock formation. Low sensitivity formations typically produce invertebrate fossils in low abundance or that are poorly preserved.

Indeterminate Sensitivity

Unknown or indeterminate sensitivity indicates that the rock unit has not been sufficiently studied or lacks good exposures to warrant a definitive rating. This rating is treated initially as having a high sensitivity. After study or monitoring, the unit may be redefined into one of the other categories.

No Sensitivity

Metamorphic and igneous rock units do not, except in extremely rare instances, yield fossils. Therefore, these rock units are considered to have no potential to yield significant non-renewable fossiliferous resources and are identified as having no sensitivity for paleontological resources. Artificial fill is another sediment type that, while it could conceivably contain fossils, would be considered to have no sensitivity for paleontological resources. Fill sediment has lost its provenience data and, therefore, any fossils contained therein would be of little scientific value.

As taken from the paleontological guidelines for Orange County (Cooper and Eisentraut 2000), fossils are considered to be scientifically significant if they meet or potentially meet any one or more of the following criteria:

- Taxonomy. Fossils that are scientifically judged to represent rare or unknown taxa, such as a new species.

- Evolution. Fossils that are scientifically judged to represent important stages or links in evolutionary relationships, or fill gaps or enhance knowledge of under-represented intervals in the stratigraphic record.

- Biostratigraphy. Fossils that are scientifically judged to be important for determining or constraining relative geologic (stratigraphic) age, or for use in regional to interregional stratigraphic correlation problems.

- Paleoecology. Fossils that are scientifically judged to be important for reconstructing organism community structure or ancient sedimentary environments.

- Taphonomy. Fossils that are scientifically judged to be exceptionally well or unusually/uniquely preserved, or are relatively rare in the stratigraphy.

4.23.3 IMPACTS RELATED TO PALEONTOLOGICAL RESOURCES

4.23.3.1 Construction Impacts Related to Paleontological Resources

Fossils and their associated contextual data are important, nonrenewable scientific resources and the loss of these paleontological resources resulting from construction of the SOCTIIP Alternatives would be the primary adverse impact of these Alternatives. Earthmoving operations will result in the destruction of fossils and rock units within the construction disturbance limits. It is often not possible to completely eliminate impacts to fossil resources. It is understood that earthmoving activity will, unavoidably, destroy some fossils. Such impacts can be mitigated by collecting and preserving a representative sample of the entire potential assemblage and associated geologic information. However, whether or not a specimen is collected in a representative sampling does not change the inherent significance of that specimen as a non-renewable paleontological resource.

Direct adverse impacts of construction of the SOCTIIP build Alternatives on paleontological resources would include:

- The destruction of fossils (non-renewable, limited resources) would be an adverse direct impact on the region's paleontological resources.
- Damage to fossils during grading would be an adverse direct impact.
- The destruction of rock units (non-renewable, limited resources) in the SOCTIIP study area would be an adverse direct impact.
- Loss of contextual data associated with fossils would be an adverse direct impact.
- Loss of associations between fossils would be an adverse direct impact.

The recovery of fossils as part of the construction of the SOCTIIP build Alternatives will make new information available to scientists, educators and the general public that they would not possess without construction of these Alternatives. This fossil recovery would be a beneficial impact. This information could include new data on the evolutionary relationships and developmental trends among organisms, biostratigraphic information on the age of rock units or sedimentary strata, the depositional history of the region and the timing of geologic events, development of biological communities, interactions between paleobotanical and paleozoological biotas, geographic restrictions of past biota and unusual or spectacular circumstances in the history of life. Recovered fossil specimens or casts of specimens could also serve as a source of educational material and be incorporated into exhibits for public display.

4.23.3.2 Long Term Impacts Related to Paleontological Resources

The potential for long term adverse impacts of the SOCTIIP build Alternatives related to paleontological resources is indirect. The principal potential long term adverse indirect impact

would be the provision of access to currently inaccessible areas of Orange County, thereby increasing human presence in those areas. Increased human presence creates opportunities for increased disturbance to paleontological resources. These possible indirect impacts include:

- Human-created erosion.
- Increased natural erosion due to human modification of the environment.
- Damage or erosion created by off-road motor vehicle traffic.
- Increased illegal access and disruption to exposed fossil resources adjacent to the build Alternatives by amateur collectors and construction personnel.

4.23.3.3 Summary of Impacts Related to Paleontological Resources

Tables 4.23-2 through 4.23-9 provide a summary of the rock units that occur along each SOCTIIP build Alternative and the paleontologic sensitivity of the unit. Alternatives that include rock units of high, moderate or indeterminate sensitivity would be considered to have the potential for adverse impacts related to paleontological resources. The AIO and the I-5 Alternatives would have less adverse impacts related to paleontological resources (five geologic rock units impacted) than the other build Alternatives. The A7C-ALPV and the A7C-FEC-M Alternatives would impact a total of six geologic rock units and the FEC-W Alternative would impact seven rock units. The FEC-M, CC and the CC-ALPV Alternatives would have the most adverse impacts related to paleontological resources because they each would impact eight geologic rock units.

The No Action Alternatives would not result in adverse impacts related to paleontological resources because these Alternatives do not propose construction or implementation of any SOCTIIP transportation improvements in the study area.

4.23.4 MITIGATION MEASURES RELATED TO PALEONTOLOGICAL RESOURCES

4.23.4.1 Mitigation Measures Originally Identified in TCA EIR No. 3

Mitigation measures were provided in the MMP for TCA EIR No. 3 for the Foothill Transportation Corridor – Oso Parkway to I-5 to minimize the impacts to paleontological resources identified for the alignments analyzed in that EIR. All the mitigation measures in the MMP for EIR No. 3 were reviewed and have been incorporated, as applicable, in the mitigation measures for the SOCTIIP Alternatives. Table 4.23-10 lists the mitigation measures from the MMP in EIR No. 3 and provides the proposed status for each measure. If the measure has been incorporated into a SOCTIIP mitigation measure, the new mitigation measure number is provided.

4.23.4.2 Mitigation Measures for Impacts Related to Paleontological Resources

This Section provides the specific mitigation measures for the adverse impacts of the SOCTIIP build Alternatives on paleontological resources.

Measure P-1: Pre-Construction Salvage. Prior to the start of any earthmoving activity, an Orange County Certified (OCC) Paleontologist will be retained to conduct pregrading salvage of any significant exposed fossils identified by the OCC Paleontologist prior to any heavy equipment activity in a particular area. Paleontological monitoring of brush removal shall be performed by a qualified paleontologist, under the supervision of an OCC Paleontologist, to locate and salvage additional significant fossil remains not previously visible. The OCC Paleontologist shall prepare a paleontological technical report that includes methodology, results, and an inventory list of significant fossils recovered.

Measure P-2: Monitoring Procedures. Prior to the start of any earthmoving activity, an OCC Paleontologist shall be retained to establish procedures, following these mitigation guidelines set forth in this Paleontological Resources Technical Report, for paleontological resource monitoring by qualified paleontological monitors during grading, and procedures for temporarily halting or redirecting work to permit the sampling, identification and evaluation of the fossils as appropriate. The OCC Paleontologist shall also establish emergency procedures applicable to the discovery of unanticipated significant paleontological resources (e.g. large specimens or significant concentrations of specimens as determined by the OCC Paleontologist). The OCC Paleontologist shall be present at the pregrading conference to explain the established procedures to the construction contractors.

Measure P-3: Construction Monitoring. During all construction activities which involve soil disturbance, the following activities will be conducted:

a. An Orange County Certified Paleontologist will be retained to supervise monitoring of construction excavations and to produce a mitigation plan for the proposed project. Paleontological monitoring will include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. The monitor will have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens.

b. If microfossils are present, the monitor will collect matrix for processing. In order to expedite removal of fossiliferous matrix, the monitor may request heavy machinery assistance to move large quantities of matrix out of the path of construction to designated stockpile areas. Testing of stockpiles will consist of screen washing small samples (approximately 90 kilograms, or 200 pounds) to determine if significant fossils are present. Productive tests will result in screen washing of additional matrix from the stockpiles to a maximum of 2,700 kg (6,000 lbs) per locality to ensure recovery of a scientifically significant sample.

c. Younger Quaternary Alluvium, San Onofre Breccia and Quaternary Landslide Deposits have a low or indeterminate paleontological sensitivity level, and will be spot-checked in a

periodic basis to insure that older underlying sediments are not being penetrated and fossils are not being exposed. All earth-moving in the Williams Formation, Silverado Formation, Santiago Formation, Sespe Formation, Vaqueros Formation, Sespe/Vaqueros Undifferentied, Topanga Formation, Monterey Formation, Capistrano Formation, Niguel Formation, Older Quaternary Alluvium and Quaternary Marine and Non-Marine Terrace Deposits will be monitored full-time. The moderate to high paleontological sensitivity of these formations requires a maximum effort to recover fossils.

d. The Orange County Certified Paleontologist will prepare monthly progress reports to be filed with the client and the lead agencies.

e. Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to allow analysis, and deposited in a designated repository such as a County of Orange facility, which shall have the first right-of-refusal of the collection, or the Natural History Museum of Los Angeles County or San Diego Natural History Museum.

f. At each fossil locality, field data forms will record the locality, stratigraphic columns will be measured and appropriate scientific samples submitted for analysis.

g. The Orange County Certified Paleontologist will prepare a final mitigation report to be filed with the client, the lead agencies, and the repository.

Mitigation measures P-1, P-2 and P-3 apply to all of the SOCTIIP build Alternatives. The measures would not apply to the No Action Alternatives because these Alternatives do not propose construction of any SOCTIIP transportation improvements in the study area.

TABLE 4.23-1
SUMMARY OF ROCK UNITS EXPOSED IN THE STUDY AREA AND THE TYPES OF FOSSILS POTENTIALLY PRESENT

Rock Unit	Types of Fossils Potentially Present	Age
Landslides	Landslide deposits may contain fossils, but the strata are typically displaced from their original stratigraphic position. This displacement and the subsequent loss of contextual data limits the scientific value of any fossil material found in these deposits.	Variable
Younger Alluvium	Fossils unlikely to be present.	Holocene
Older Alluvium and Terrace Deposits	Pleistocene taxa from alluvial and terrace deposits include amphibians (toad, frog, newt), reptiles (pond turtle, desert tortoise, fence lizard, alligator lizard, rattlesnake, gopher snake) birds (duck, hawk, burrowing owl, quail, coot, sparrow) and mammals (shrew, ground sloth, jack rabbit, cottontail rabbit, ground squirrel, pocket gopher, pocket mouse, kangaroo rat, deer mouse, mouse, woodrat, vole, muskrat, coyote, dire wolf, weasel, sabertooth cat, mammoth, mastodon, horse, camel, antelope, deer, bison). Marine terrace deposits, such as the San Pedro Sand to the north, have produced marine invertebrates and vertebrates.	Pleistocene to Early Holocene
Niguel Formation	The basal conglomerate of the Niguel Formation contains Pliocene molluscs and reworked Miocene vertebrate fossils. The sandstone and siltstone layers above the basal conglomerate contain abundant trace fossils of *Scolithus linearis*, thought to be the burrows of sand crabs or ghost shrimp. These are exposed on the eastern road cuts of Interstate 5 between Oso Parkway and La Paz Road. The burrows range from 3 mm to 20 mm in diameter and up to 1.5 m in length. Trace fossils identified as *Ophimorpha nodosa*, steinkerns of *Tivela stultorum*, and shell fragments are also present. The middle layers of the Niguel Formation contains the greatest abundance of fossils. Concretions containing the fossil bones and teeth of cetaceans, teleosts, and sharks are present in a horizon that can be traced throughout the Laguna Hills north of San Juan Capistrano. Above this bone horizon is a layer of shell lenses, which contain a mixed fauna of littoral species including heavy surf zone species and delicate low-energy environment species. Abundant species include several clams, *Patinopecten healeyi*, *Chlamys parmeleei*, *Pecten stearnsii*, *Crepidula princeps*, and *Ostrea vespertina*. Over 125 marine invertebrate and vertebrate fossil species were collected during the development of Nellie Gale Ranch in Laguna Hills in 1975. Above the shell lenses, within finer mudstones of the middle layers, articulated oyster shells of *Ostrea erici* form a distinct horizon that has a wide lateral distribution through the Niguel Formation, especially in the Laguna Hills. Several species of invertebrate fossils have also been found above this oyster horizon. The fossil fauna of the Niguel Formation is correlative with the San Diego Formation.	Late Pliocene

TABLE 4.23-1
SUMMARY OF ROCK UNITS EXPOSED IN THE STUDY AREA AND THE TYPES OF FOSSILS POTENTIALLY PRESENT

	The Niguel Formation has yielded some of the most important fossils in Orange County in terms of diversity and their ability to provide paleoenvironmental data for late Miocene through early Pliocene time. Plant fossils from the Marblehead localities northeast of the junction of Interstate 5 and Avenida Pico, as well as from other localities, indicate the co-existence of diverse terrestrial habitats along the ancient coast of southern California. A riparian floodplain environment is represented by avocado, palm, sycamore, willow, alder, California bay, sedges, reeds, pondweed and cattail fragments. Oak woodland/grassland, a habitat type still found in patches across southern California today and dominated by large live and blue oaks, is indicated by the presence of grasses, oak leaves and acorns. Specimens of manzanita, scrub oak and barberry indicate the low, dense chaparral community of hard-leaved shrubs. Various marine plant fossils have also been preserved including tongue-shaped algae, narrow-stipe algae, large horn algae, many-branched algae, red seaweeds and brown seaweeds.	
Capistrano Formation	A diverse array of marine and terrestrial animals is known from the Capistrano Formation. Invertebrates include siliceous microfossils (diatoms, radiolarians), foraminifera, sponges, bryozoans, molluscs (ark shells, scallops, tellin clams, bean clams, oysters, dove shells, staircase snails, moon snails, slipper snails, olive snails, whelks, high spiralled snails), crustaceans (barnacles, crabs), and sand dollars. Vertebrates include toads, reptiles (leatherback turtle, pond turtle, tortoise, crocodile), sharks and rays (seven-gill shark, mackerel shark, mako shark, great white shark, extinct great white shark, tiger shark, blue shark, leopard shark, lemon shark, basking shark, snaggle-toothed shark, hammerhead shark, saw shark, ratfish, bat ray), fish (herrings, salmon, saber-toothed salmon, hake fish, croaker, sea bass, pile surfperch, sheephead, knifejaw, snake mackerel, mackerels, bill fish, lefteye rounder halibut, California halibut, lanternfish), birds (loon, grebe, cormorant, albatross, gannet, shearwater, Cedros Island flightless auk, Lucas flightless auk, Cedros Island little puffin, eagle, pelican), terrestrial mammals (rabbit, rodent, mastodon, horse, rhinoceros, camelid, antelope, weasel, primitive dog), and marine mammals (sea lion, fur seal, walrus, false walrus, seal, desmostylians, sea cow, dugong, right whale, fin-back whale, sperm whale, porpoises, dolphins). Other specimens include trace fossils in the form of coprolites, burrows and wood casts.	Late Miocene to Early Pliocene
Monterey Formation	Numerous invertebrate, fish and marine-mammal fossils have been recovered from the Monterey Formation in Orange County. Siltstones and shales in Aliso Viejo, Laguna Niguel, and other Orange County localities have produced a wide array of fossils including coprolites, algae, plant fragments, pollen (pine, primrose, dune grass, willow), foraminifera, diatoms, sponges, bryozoan colonies, serpulid worms, pectens, oysters, clams, marine snails, ostracods (microscopic crustaceans), barnacles, sand dollars, sharks, bat rays, articulated fish in mortality assemblages such as puffer fish, sheepshead, trigger fish and several species of schooling fish, turtles, crocodiles, dolphins, baleen whales, sea lions, manatees (sea cows), desmostylians, horses, squirrels, dogs, deer, and birds.	Middle to Late Miocene

TABLE 4.23-1
SUMMARY OF ROCK UNITS EXPOSED IN THE STUDY AREA AND THE TYPES OF FOSSILS POTENTIALLY PRESENT

	Pecten Reef is the name given to the conspicuous invertebrate fossil-bearing limestone lenses that occur at the base of the Monterey Formation in Orange County. Exposures occur over about a 33 km (10 mile) long area, and may be much more extensive in the subsurface. In 1982, a 0.4 hectare (one acre) exposure of the Pecten Reef was designated as an Orange County Historical Landmark (Stadum 1984). The Pecten Reef was not a true reef (living in place and then buried), but rather a deposit of fossils transported and later cemented into bedded-limestone coquinas (deposits of transported shells).	
San Onofre Breccia	Fossils in this unit are not widespread but are locally abundant in certain outcrops throughout Orange County, mainly in the grey conglomeratic layers. Scientific Resource Surveys (1994) reported articulated and disarticulated pecten shells in coarse sandstone lenses of the massive breccia units. The index fossil *Turritella ocoyana* also occurs in sandstone beds within the breccia and indicates an age of middle Miocene (~15 million years). Poorly preserved nearshore marine foraminifera, bivalves, and some unidentified marine mammal remains have been found in San Diego County, collected from either the sandstone or mudstone layers of the formation. Land plant fossils found in this formation include horsetails, reeds and cattails. Marine fossils include diatoms, bryozoans, oysters, pectens, barnacles, whales, pinnipeds, sharks, fish, and fish coprolites (fossilized excrement, a type of trace fossil).	Middle Miocene
Topanga Formation	The Topanga Formation is one of the most fossiliferous formations in Orange County, producing abundant and diverse marine vertebrate and invertebrate faunas. Additionally, terrestrial plant fossils indicate that a warm, Mediterranean-type environment existed during the middle Miocene in Orange County, similar to the conditions along the Pacific coast of Mexico today. Habitat types represented in the Topanga flora include oak woodlands and riparian floodplains, with magnolias, sycamores, maples, alders, birches, oaks, willows, reeds, cattails, ginsengs, grasses, avocados, and palms. Although avocados and palms are not native to coastal southern California today, they do live in coastal parts of Mexico, where the rainfall in Sonora is a minimum of 25 inches per year with wet summers and frost-free winters. An extinct Miocene form of filamentous brown algae seaweed has also been recovered from the Topanga Formation, as well as trace fossils such as coprolites and worm tubes. Marine molluscs are common in the Topanga Formation and include large pectinids (scallops), oysters, and gastropods (snails). Corals, sand dollars, sea urchins, brachiopods, barnacles, crabs, and shrimp have also been recovered. The gastropod index fossil *Turritella ocoyana* places the age of the Topanga Formation as middle Miocene, approximately 15 million years ago. Additionally, foraminiferan samples collected in the San Joaquin Hills reveal an age of 16.3 to 11.8 million years. New paleoenvironmental data has been reported by Conkling et al. (1997) in the Topanga Formation from the San Joaquin Hills Transportation Corridor describing a series of substrate-defined faunas, where certain suites of animals are found only in specific substrates or environments and are excluded from others.	Middle Miocene

TABLE 4.23-1
SUMMARY OF ROCK UNITS EXPOSED IN THE STUDY AREA AND THE TYPES OF FOSSILS POTENTIALLY PRESENT

Vaqueros Formation	Abundant remains of invertebrates and vertebrates, as well as fossil leaves of land plants have been found in the Vaqueros Formation. Invertebrate fossils include sponges, bryozoans, polychaete worms, brachiopods, marine snails, oysters, clams, scallops, scaphopods, barnacles, crabs, sea urchins, and sand dollars. Marine vertebrate fossils include sharks, rays, fish, sea turtles, whales, desmostylids, sea lions, and sea cows. Terrestrial vertebrates that were washed into these marine sediments include turtles, birds, insectivores, rabbits, rodents, camels, and oreodonts.	Early Miocene
Sespe Formation	Fossils that have been found in the Sespe Formation include plants (leaves and wood), molluscs (land snails), amphibians, tortoises, several lizards, boiid snakes, birds, and mammals (opossums, shrews, hedgehogs, early dogs and cats, mustelids, raccoons, rabbits, pikas, several taxa of rodents, peccaries, entelodonts, camels, oreodonts, deer, rhinoceroses, and horses).	Late Eocene to Early Miocene
Santiago Formation	Fairly extensive marine molluscan and foraminiferan faunas are known from this formation. Important Eocene terrestrial mammal faunas have been found in northern San Diego County in Members B and C (Walsh 1996). Fossils from the Santiago Formation include land plants, molluscs, fish, turtles, lizards, oppossum-like marsupials, insectivores, pantolestid and apatotheriid primitive mammals, primates, carnivores, several types of rodents, rhinos, tapir, camels, oreodonts and deer-like artiodactyls. Fossil burrows identified as *Ophiomorpha* sp. are also known. A newly discovered bone bed was excavated in January 2001 in south Orange County at Talega (just north of Avenida Pico in the City of San Clemente) by SWCA Environmental Consultants. The sediments are mapped as the Santiago Formation by Morton and Miller (1981), but may actually belong to the lower Sespe Formation. Initial identification shows that a turtle, brontothere (extinct relative of the rhinoceros), rhinoceros, tapir, camel, at least two different oreodonts, and possibly the oldest known primitive dog (a hesperocyonid) are present in this Duchesnean Age (~37-42 mya) fauna.	Eocene
Silverado Formation	Brackish-water and marine molluscan faunas in the northern Santa Ana Mountains that include various clam species and marine snail species are known from the Silverado Formation. Non-marine units in the vicinity of the Santa Ana Mountains have produced a wide variety of extinct land plant fossils, including fossilized wood, leaves, roots, fruits, pollen, fruiting bodies and spores. The flora collected from numerous sites include fungi, mosses, club mosses, climbing ferns, epiphytic ferns, terrestrial ferns, tree ferns, cycads, pine, bald cypress, feather and fan palms, Japanese Katsura/Chinese Scholar trees, sycamores, chestnuts, laurels, willow or ash, oaks, birches, hickorys, gum trees, witch hazels, bays and Chinese elm.	Paleocene
Williams Formation – Pleasants Sandstone Member	Abundant and diverse marine mollusc assemblages including ammonoids, nautiloids, gastropods and bivalves.	Late Cretaceous

Source: SWCA Environmental Consultants (2003).
Note: The South Orange County Transportation Infrastructure Improvements Project Paleontological Resources Technical Report (SWCA Environmental Consultants, 2003) contains all of the references for the information in this table. The Report is available for review at the TCA.

TABLE 4.23-2
PALEONTOLOGICAL SENSITIVITY OF THE
FAR EAST CORRIDOR-WEST-INITIAL AND ULTIMATE

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Sespe Formation	High	High
Santiago Formation	High	High
Quaternary Terrace or Older Alluvium	High	High
Puente Formation	High	High
Monterey Formation	High	High
Capistrano Formation	High	High
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-3
PALEONTOLOGICAL SENSITIVITY OF THE
FAR EAST CORRIDOR-MODIFIED-INITIAL AND ULTIMATE

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Sespe Formation	High	High
Santiago Formation	High	High
Williams Formation – Pleasants Sandstone Member	High	High
Quaternary Terrace or Older Alluvium	High	High
Silverado Formation	Moderate	Moderate
Monterey Formation	High	High
Capistrano Formation	High	High
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-4
PALEONTOLOGICAL SENSITIVITY OF THE
CENTRAL CORRIDOR-COMPLETE-INITIAL AND ULTIMATE

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Sespe Formation	High	High
Santiago Formation	High	High
Quaternary Terrace or Older Alluvium	High	High
Monterey Formation	High	High
Topanga Formation	High	High
San Onofre Breccia	Low	Low
Vaqueros Formation	High	High
Capistrano Formation	High	High
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-5
PALEONTOLOGICAL SENSITIVITY OF THE CENTRAL CORRIDOR-AVENIDA LA PATA VARIATION-INITIAL AND ULTIMATE

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Sespe Formation	High	High
Santiago Formation	High	High
Quaternary Terrace or Older Alluvium	High	High
Monterey Formation	High	High
Topanga Formation	High	High
San Onofre Breccia	Low	Low
Vaqueros Formation	High	High
Capistrano Formation	High	High
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-6
PALEONTOLOGICAL SENSITIVITY OF THE ALIGNMENT 7 CORRIDOR- -FAR EAST CROSSOVER-MODIFIED-INITIAL AND ULTIMATE

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Sespe Formation	High	High
Santiago Formation	High	High
Quaternary Terrace or Older Alluvium	High	High
Monterey Formation	High	High
Capistrano Formation	High	High
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-7
PALEONTOLOGICAL SENSITIVITY OF THE ALIGNMENT 7 CORRIDOR-AVENIDA LA PATA VARIATION -INITIAL AND ULTIMATE

Geologic Rock Units Impacted	Paleontological Sensitivity	
	Initial	Ultimate
Sespe Formation	High	High
Santiago Formation	High	High
Quaternary Terrace or Older Alluvium	High	High
Monterey Formation	High	High
Capistrano Formation	High	High
San Onofre Breccia	Low	Low
Bedrock Landslides	Indeterminate	Indeterminate
Younger Alluvium	Low to No	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-8
PALEONTOLOGICAL SENSITIVITY OF THE ARTERIAL IMPROVEMENTS ONLY ALTERNATIVE

Geologic Rock Units Impacted	Paleontological Sensitivity
Topanga Formation	High
San Onofre Breccia	Low
Monterey Formation	High
Capistrano Formation	High
Bedrock Landslides	Indeterminate
Quaternary Terrace or Older Alluvium	High
Younger Alluvium	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-9
PALEONTOLOGICAL SENSITIVITY OF THE I-5 ALTERNATIVE

Geologic Rock Unit Impacted	Paleontological Sensitivity
Monterey Formation	High
Capistrano Formation	High
Niguel Formation	High
Bedrock Landslides	Indeterminate
Quaternary Terrace or Older Alluvium	High
Younger Alluvium	Low to No

Source: SWCA Environmental Consultants (2003).

TABLE 4.23-10
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO.3

Mitigation Measures From EIR No.3	PROPOSED STATUS
Measure 36. In conjunction with final design, the TCA shall retain a qualified paleontologist to conduct pregrading salvage and prepare a catalogue of the exposed resources. The paleontologist shall submit a follow-up report for review and approval to the TCA, which shall include methodology, a catalogue of artifacts, and their present repository.	This measure has been incorporated in current measure P-1.
Measure 38. Prior to the start of construction activity, the TCA shall retain a qualified archaeologist/paleontologist. The archaeologist/paleontologist shall establish procedures for archaeological/paleontological resource surveillance, and procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts as appropriate. The archaeologist/paleontologist shall also be present at the pregrading conference to explain the established procedures. If additional or unexpected archeological/paleontological features are discovered, the archaeologist/paleontologist observer shall determine appropriate actions, in cooperation with the TCA, for exploration and/or salvage. The archaeologist/paleontologist shall submit a follow-up report to the TCA that shall include the period of inspection, an analysis of any artifacts found, and the present repository of the artifacts.	This measure has been incorporated in current measures P-2 and P-3.

Source: P&D Consultants (2003).

4.24 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION MEASURES RELATED TO PUBLIC SERVICES AND UTILITIES

The potential impacts of the SOCTIIP Alternatives related to public services and utilities are evaluated in detail in the "Public Services and Utilities Technical Report" (P&D Consultants, 2003) and are summarized in this Section. Refer to the Table of Contents for locations where this Technical Report is available for review or purchase.

4.24.1 AFFECTED ENVIRONMENT RELATED TO PUBLIC SERVICES AND UTILITIES

The SOCTIIP build Alternatives cover a substantial part of south Orange County and some of north San Diego County. The study area for public services and utilities includes the following local jurisdictions and communities in which physical alignments and improvements are proposed under the SOCTIIP build Alternatives: Cities of San Clemente, San Juan Capistrano, Lake Forest, Mission Viejo, Laguna Hills, Laguna Woods, Dana Point, Laguna Niguel and Irvine, and parts of unincorporated Orange County and Camp Pendleton in San Diego County. The physical impacts of the SOCTIIP build Alternatives related to public services and utilities would be largely limited to the area of disturbance. As a result, the majority of the existing conditions discussion focuses on existing and planned services and utilities within the disturbance limits or close enough to the disturbance limits to be potentially impacted by the build Alternatives (within 76 meters (m) (250 feet (ft)) of the disturbance limits of the SOCTIIP build Alternatives). The specific locations of public services and utilities facilities in the vicinity of the build alternatives were identified based on information provided by the services and utilities providers. Using Geographic Information Systems (GIS) computer technology, these utilities and services facilities and their property limits, as appropriate, were overlaid on aerial photographs and the disturbance limits of the various build alternatives were added. The closest distance from the edge of the disturbance limits of the build alternatives to the edge of the public services and utilities facilities or property limits was measured within the GIS program. However, because services and utilities are generally provided in fairly large areas (a city or service area for example), this Section includes discussion of the larger service areas as appropriate, to provide an appropriate context for the service providers or utilities, their facilities and their services provided in the vicinity of the SOCTIIP build Alternatives.

4.24.1.1 Affected Environment Related To Public Services

A number of public service facilities and networks service the SOCTIIP study area, including fire protection and emergency medical services, law enforcement, solid waste disposal services, schools and public facilities. The service providers and the services they provide are described in the following sections. Public service facilities which are within the disturbance limits or within 76 m (250 ft) of the disturbance limits for the SOCTIIP Alternatives are shown in Figure 4.24-1. Figures and tables cited in this Section are provided following the last page of text in this Section. Other public service facilities in the SOCTIIP study area that are more than 76 m (250 ft) from the disturbance limits are not shown on Figure 4.24-1 because they would not be physically impacted by the build Alternatives.

Fire Protection and Emergency Medical Services

The Orange County Fire Authority (OCFA) provides fire protection and emergency medical services in the SOCTIIP study area in the Cites of San Clemente, Laguna Niguel, Laguna Woods, Laguna Hills, San Juan Capistrano, Mission Viejo, Lake Forest, Dana Point and Irvine and in unincorporated areas of Orange County. The OCFA also provides emergency medical service approximately 16.9 km (10.5 mi) beyond the Orange County line to Las Pulgas Road on Camp Pendleton, through an agreement with the Base and the County of San Diego.

Camp Pendleton is responsible for fire service throughout the Base and for rescue on the Base south of Las Pulgas Road. The Camp Pendleton Fire Department also provides fire protection and emergency medical response services to several areas of southern Orange County through Mutual Aid Agreements with other local fire protection agencies. There are eleven fire stations on Camp Pendleton. Two are in the SOCTIIP study area: one in Area 63 off Cristianitos Road and the other in Area 52 off Basilone Road (Chief Robert Praytor, Fire Chief, Camp Pendleton Fire Department, April 2002). However, neither of these stations is within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any of the SOCTIIP build Alternatives and, therefore, are not shown on Figure 4.24-1.

The following two existing OCFA fire stations are within 76 m (250 ft) of the disturbance limits of the I-5 Alternative: Fire Station No. 9 at 26312 Shops Boulevard in Mission Viejo and Fire Station No. 60 at 100 Avenida Presidio in San Clemente. A fire station proposed for the Talega Community in San Clemente is anticipated to be constructed in 2003. The addition of two more stations in the SOCTIIP study area is under evaluation by the OCFA pending area development. One proposed location is the vicinity of La Pata Avenue and Ortega Highway and the other is further east on Ortega Highway (Michael Rohde, Battalion Chief, OCFA, August 7, 2001).

Fire Station No. 60 in San Clemente has direct access to the existing I-5 ramps and I-5 is currently used for approximately 90 percent of the emergency calls in the City. Chapter 15.48 of the San Clemente Municipal Code outlines the requirements for fire service levels in the City, including response times. In summary, response times should not exceed five minutes for the first-due engine company and 12 minutes for the second-due engine. These response times are determined through the use of a computer model which takes into consideration distance, speed limits, intersection delays, intersection operations (signal, stop sign, through traffic, etc.) and other factors (Michael Rohde, Battalion Chief, OCFA, August 7, 2001).

The OCFA has indicated that response times to Marblehead Inland in San Clemente are currently deficient. However, this project was approved by the City Council because of the planned development of an I-5 off ramp at Avenida Vista Hermosa. The OCFA plans to ultimately have three fire stations in San Clemente. If a planned intersection at Avenida La Pata and Avenida Del Rio is not provided in the future, a fourth fire station may be necessary (Michael Rohde, Battalion Chief, OCFA, August 7, 2001).

The San Clemente Hospital Medical Center is within 76 m (250 ft) of the disturbance limits of the I-5 Alternative. MCB Camp Pendleton has one hospital in the east part of the Base, outside the SOCTIIP study area, and 10 medical clinics on the Base. Two of these clinics, one in Area

52 and the other in Area 62, are in the SOCTIIP study area. (Commander Carlson, Branch Medical Clinic Coordinator, MCB Camp Pendleton, April 2002). However, neither clinic is in the disturbance limits or within 76 m (250 ft) of the disturbance limits of any of the SOCTIIP build Alternatives.

Law Enforcement

Law enforcement services in the SOCTIIP study area are provided by the Orange County Sheriff-Coroner (Sheriff's Department), City of Irvine Police Department, the California Highway Patrol (CHP), the San Diego County Sheriff's Department and the Provost Marshall of Camp Pendleton. The Sheriff's Department is responsible for providing law enforcement services to incorporated cities that contract with the Department. In the SOCTIIP study area, contracting cities are Dana Point, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente and San Juan Capistrano. The Sheriff's Department also provides service to the Ladera Ranch and Las Flores communities in unincorporated Orange County. The Sheriff's Department responds to calls for service, provides for the protection of lives and property, maintains peace and order, investigates criminal offenses and traffic collisions, apprehends offenders and provides other services directed at solving community problems and addressing local issues.

The majority of patrol and investigative services are concentrated at the Aliso Viejo and San Clemente Stations. The Aliso Viejo Station is not near any of the SOCTIIP build Alternatives. The San Clemente Station, at 100 Avenida Presidio, is within 76 m (250 ft) of the disturbance limits of the I-5 Alternative. Community policing efforts are decentralized, with the majority of these services provided out of offices in the individual city halls or community centers of the contracting cities. Community offices near the SOCTIIP build Alternatives are in the city halls of Lake Forest at 23161 Lake Center Drive and Laguna Hills at 25201 Paseo De Alicia, and at the Mission Viejo Community Resources Center in the Shops at Mission Viejo located on a street called The Shops at Mission Viejo. The Lake Forest office is within the disturbance limits of the I-5 Alternative and the other two offices are within 76 m (250 ft) of the I-5 Alternative disturbance limits.

The City of Irvine Police Department is responsible for law enforcement in the City of Irvine. There are no City Police Department Stations in the disturbance limits or within 76 m (250 ft) of the disturbance limits of any of the SOCTIIP build Alternatives.

The CHP is responsible for service and patrol on all freeways and on all streets and highways outside the limits of incorporated cities. The primary CHP office responsible for providing service in the SOCTIIP study area in the County of Orange is the Capistrano Area Office, at 32951 Camino Capistrano in the City of San Juan Capistrano. This facility is within 76 m (250 ft) of the disturbance limits of the I-5 Alternative. The service area for this office is I-5 south from its interchange with Interstate 405 (I-405) at the boundary of the City of Lake Forest to the San Diego County boundary and the unincorporated county areas of Robinson Ranch, Dove Canyon, Foothill Ranch, Coto de Caza and Trabuco Canyon. The primary CHP office responsible for providing service in the SOCTIIP study area in San Diego County is the Oceanside CHP Area Office in the City of Oceanside.

Law enforcement at Camp Pendleton, which is under exclusive federal jurisdiction, is provided by the Provost Marshall of the Base. In that part of Camp Pendleton that is leased to the State of California for operation of SOSB, law enforcement is provided by the San Diego County Sheriff's Department.

Solid Waste Disposal Services

Prima Deshecha Sanitary Landfill, managed by the County of Orange Integrated Waste Management Department (IWMD), is the only operating sanitary landfill in the SOCTIIP study area. Located at the terminus of La Pata Avenue, south of Ortega Highway, the Landfill covers approximately 619 ha (1,530 ac) in the jurisdictions of the Cities of San Juan Capistrano (231 ha/570 ac), San Clemente (54 ha/133 ac) and in unincorporated Orange County (335 ha/827 ac).

Prima Deshecha Landfill is a state-designated Class III facility which is permitted for the disposal of non-hazardous municipal solid waste (MSW) and biosolids (digested sewage sludge). No liquid or hazardous wastes are accepted or proposed for on-site disposal. The IWMD currently operates under Waste Discharge Requirements (WDR 93-86 and WDR 89-102) issued by the San Diego Regional Water Quality Control Board (SDRWQCB), a Solid Waste Facilities Permit (SWFP No. 30-AB-0019) issued by the Local Enforcement Agency (LEA) and concurred on by the California Integrated Waste Management Board (CIWMB) and Conditional Use Permit (CUP) 95-4 issued by the City of San Juan Capistrano. The SDRWQCB also issued the Stormwater Discharge Permit for the Landfill. The South Coast Air Quality Management District (SCAQMD) enforces air quality regulations related to the Landfill and issued the permit to operate the landfill gas (LFG) management system.

The Landfill currently operates under the 1979 Development Plan. Under this Plan, the majority of the canyons on the site will be filled, providing a total capacity of 62 million cubic meters (mcm) (81 million cubic yards (mcy)). As of January 2001, about 11.2 mcm (14.6 mcy) of refuse capacity had been used, leaving a remaining capacity of approximately 50.8 mcm (66.4 mcy). The current permits allow a refuse inflow rate of 3,628.8 tonnes per day (4,000 tons per day (tpd)). However, the actual inflow rate has never reached this level. Solag Disposal and Waste Management of Orange County are the primary private contractors which transport MSW to this Landfill.

Landfilling of MSW at Prima Deshecha Landfill began in 1976, in an area now known as Waste Management Unit 2 (WMU2), as shown on Figure 4.24-2. This 13.4 ha (33 ac) area is east of the current Landfill entrance facilities, in unincorporated Orange County. As of January 2001, the in-place refuse volume in WMU2 was 1.15 mcm (1.5 mcy). WMU1, also shown on Figure 4.24-2, encompasses 68.8 ha (170 ac) entirely in the City of San Juan Capistrano in the west part of the Landfill site. Landfilling of MSW with some biosolids continues at WMU1. As of January 2001, WMU1 had a total in-place refuse volume of 10 mcm (13.1 mcy) and a remaining capacity of 21.3 mcm (27.8 mcy). WMU1 is currently used as the wet weather disposal area.

In addition to the landfilling operations, related facilities and activities at the Landfill include:

- Personnel facilities, site office and equipment maintenance facilities.
- An energy recovery facility (ERF) that converts landfill gas to electricity.
- A Household Hazardous Waste Collection Center (HHWCC) and a facility for the temporary storage of hazardous materials.
- One fee booth and two scales.
- An LFG collection and flaring system which consists of vertical and horizontal extraction wells, collection piping and a flaring facility.
- Groundwater monitoring wells in the vicinity of the current and future refuse disposal areas.
- A groundwater extraction system downstream of WMU1, consisting of a pump station and four groundwater extraction wells in the alluvial material above the Prima Deshecha Cañada watercourse.
- A leachate collection and recovery system (LCRS) for the lined areas, including a 37,850 liter (10,000 gallon) collection tank.

General Development Plan (GDP 2001) (GDP 2001) for the Landfill includes landfill, circulation and planned recreation elements. The Plan designates about one-half of the site for landfilling and identifies zones for the protection of biological resources, ridgelines, recreational trails and planned roads. Under the GDP 2001, the Landfill is divided into five zones, with Zones 1 and 4 designated for waste disposal and future planned recreation uses. Zone 1, which encompasses WMU1, is expected to reach capacity by 2019, at which point Zone 4 will become the focus of landfilling operations. Zone 4 will have a total waste capacity of 68 mcm (89.0 mcy) and is expected to reach capacity in 2067, assuming the permitted daily refuse inflow rate of 3,628.8 tonnes per day (4,000 tpd).

These five zones are described below and are shown on Figure 4.24-2. The alignments of the CC, CC-ALPV, A7C-ALPVand the AIO Alternatives would each cross one or more of these zones in the Landfill.

Zone 1. This zone includes the currently active refuse disposal area (WMU1). The current post-closure designated use for Zone 1 is a regional park and an 18 hole golf course. Following closure of Zone 1, planned for 2019, and after sufficient settlement has occurred, implementation of the ultimate recreation uses for this part of the Landfill site can begin. These activities would be determined through a needs analysis and park plan undertaken near the time of closure.

Zone 2. This zone identifies all the recreation trails that will cross the property. On site city trails around Zone 1 can be used throughout the use of Zones 1 and 4 for waste disposal, as long as public health and safety can be protected. Trails on the perimeter of Zone 4 will be available

during landfilling operations in Zone 1, but will be closed to the public during landfilling in Zone 4. The GDP 2001 proposes to eventually connect the county trail along Zone 4 with on site city trails proposed along Zone 1 to provide a complete loop for trail users. These on site trail connections would not occur until Zone 4 is closed and a trail crossing under future La Pata Avenue is provided to the south.

Zone 3. This zone contains native vegetation, including coastal sage scrub and mixed chaparral. The intent of the GDP 2001 is to retain the majority of Zone 3 in a native state. Some habitat enhancement could be implemented, where parts of these areas have been disturbed in the past or to compensate for lost habitat associated with the development of the GDP 2001 or other development in Orange County.

Zone 4. This zone is planned for future refuse disposal after Zone 1 is filled to capacity. Two western boundaries for Zone 4 have been defined. The boundary ultimately established depends on whether the Zone 4 landfill or La Pata Avenue is constructed first due to shared areas of compacted fills. This zone is to remain undisturbed during development of Zone 1, and following closure of Zone 1, Zone 4 will serve as the final refuse disposal site on the property. Following closure of Zone 4, planned for 2067 and after sufficient settlement has occurred, implementation of the ultimate recreation uses can begin. These activities would be determined through a needs analysis and park plan undertaken near the time of closure. The current post-closure designated use for Zone 4 is a regional park.

Zone 5. This zone encompasses the area of disturbance for the construction of La Pata Avenue. The boundaries of Zone 5 were defined based on a conceptual alignment design and the assumption that La Pata Avenue would be constructed prior to landfilling in Zone 4. Should the Zone 4 landfill be constructed first and based on the final design for La Pata, the area of disturbance for La Pata Avenue would be modified to avoid the landfilled area of Zone 4.

The GDP 2001 does not specify a defined set of uses for the remaining property outside the boundaries of these five zones. This property is currently used for ancillary landfill operations (i.e., LFG flare facility, ERF), landfill infrastructure (i.e., scalehouse, field offices) and viewshed protection. In the future, it could accommodate additional uses such as biological mitigation, flood control facilities, recreational trail staging area(s) and open space buffer.

Camp Pendleton operates two active sanitary landfills for waste generated on the Base. San Onofre Sanitary Landfill is in the SOCTIIP study area off Basilone Road; however, it is not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any of the SOCTIIP build Alternatives. This Landfill, scheduled to reach capacity in 2257, can accept a maximum of 1,996 tonne (2,200 tons) of waste per year. Las Pulgas Sanitary Landfill is southeast of the SOCTIIP study area and is not within the disturbance limits or within 76 m (250 ft) of any of the disturbance limits of the SOCTIIP build Alternatives. It accepts up to 27,216 tonne (30,000 tons) of waste per year and is scheduled to reach capacity in 2184. Box Canyon Sanitary Landfill, also southeast of the SOCTIIP study area and more than 76 m (250 ft) from the disturbance of any of the SOCTIIP build Alternatives, has been closed for several years. (Don Taylor, MCB Camp Pendleton, April 15, 2002).

Schools

The SOCTIIP build Alternatives are in the service areas of the Capistrano Unified School District (CUSD), Saddleback Valley Unified School District (SVUSD), Irvine Unified School District (IUSD) and the part of the Fallbrook Union Elementary School District (FUESD) on Camp Pendleton. The CUSD service area includes parts of the Cities of Dana Point, Laguna Niguel, Mission Viejo, Rancho Santa Margarita, San Clemente and San Juan Capistrano, and areas in unincorporated Orange County. The CUSD serves approximately 45,000 students in its 505 sq km (195 sq mi) service area. CUSD facilities include 32 elementary schools, eight middle schools, four high schools, one alternative education campus and one adult education campus.

Five existing CUSD campuses are within the disturbance limits or within 76 m (250 ft) of the disturbance limits of various SOCTIIP build Alternatives, and are shown on Figure 4.24-3. Part of the Las Flores Elementary School campus, at 25862 Antonio Parkway in Las Flores, is in the disturbance limits of the AIO Alternative, and part of the San Juan Elementary School campus, at 31642 El Camino Real in San Juan Capistrano, is in the disturbance limits of the I-5 Alternative. Parts of the campuses of San Clemente High School, at 700 Avenida Pico, and Ole Hanson Elementary School, at 189 Avenida La Cuesta in San Clemente, are in the disturbance limits of the CC and I-5 Alternatives. Tesoro High School, at the south terminus of the existing FTC, south of Oso Parkway, opened on September 6, 2001. This campus is west of and within the disturbance limits or within 76 m (250 ft) of the disturbance limits of the FEC-W, FEC-M, CC, CC-ALPV, A7C-ALPV and A7C-FEC-M Alternatives. Capistrano Valley High School, at 26301 Via Escolar in Mission Viejo, is within 76 m (250 ft) of disturbance limits of the I-5 Alternative.

Future CUSD facilities in the SOCTIIP study area include the proposed San Juan Hills High School in the Whispering Hills residential development in San Juan Capistrano, west of Avenida La Pata south of Ortega Highway. The anticipated opening date for that school is fall 2005. (Cary Brockman, Director of Facilities Planning, CUSD, personal communications, June 7, 2002). This school site is within 76 m (250 ft) of the disturbance limits of the CC and CC-ALPV Alternatives. The school site is within the disturbance limits of the AIO Alternative.

The SVUSD service area includes parts of Mission Viejo, Lake Forest, Rancho Santa Margarita and Trabuco Canyon. SVUSD facilities include 26 elementary schools, four intermediate schools, four high schools and two alternative education campuses. Part of SVUSD's Mission Viejo High School campus, at 25025 Chrisanta Drive in Mission Viejo, is within the disturbance limits of the I-5 Alternative.

The IUSD service area is primarily in the City of Irvine. The IUSD serves approximately 24,000 students. IUSD facilities include 22 elementary schools, eight middle schools and six high schools, including a continuation and independent study high schools. The IUSD does not have any existing or planned facilities near the alignments of any of the SOCTIIP build Alternatives.

The FUESD operates two public schools on Camp Pendleton. One of these, San Onofre Elementary/Middle School (Kindergarten – 8th Grade) in the San Onofre I Housing Area of the

Base, is in the SOCTIIP study area, however, it is not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any SOCTIIP build Alternatives. (Deb McKay, Community Planner, MCB Camp Pendleton, April 2002).

Parts of two private school campuses, St. George's Episcopal Academy, at 23082 Avenida de la Carlota in Laguna Hills, and Rancho Capistrano School, at 29251 Camino Capistrano in San Juan Capistrano, are within the disturbance limits of I-5 Alternative. Another private school campus, Stoneybrooke Christian School, at 26300 Via Escolar in Mission Viejo, is within 76 m (250 ft) of the disturbance limits of I-5 Alternative. Our Lady of Fatima, a private school at 105 South Esperanza in the City of San Clemente, is outside the disturbance limits of the CC Alternative.

Public Facilities

Public facilities include libraries, city halls, post offices, youth centers, community centers and child care facilities designated for public use.

The majority of the public libraries in the SOCTIIP study area are operated by the Orange County Public Library System (OCPL) which operates 27 neighborhood libraries. Mission Viejo Library is operated by the City of Mission Viejo and is not part of the OCPL system. None of these libraries is within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any SOCTIIP build Alternatives. Camp Pendleton operates three libraries. San Onofre Library is in the northwest part of the Base in the SOCTIIP study area. However, it is not in the disturbance limits or within 76 m (250 ft) of the disturbance limits of any of the SOCTIIP build Alternatives. The other two libraries are in the southeast part of the Base, outside the SOCTIIP study area. (Sandra Jensen, Assistant Branch Manager Lifelong Learning, April 14, 2002).

Part of the Lake Forest City Hall building, at 23161 Lake Center Drive, and parking for Laguna Hills City Hall, at 25201 Paseo De Alicia, are within the disturbance limits of the I-5 Alternative.

The San Clemente Post Office at 520 Avenida Pico is within the CC and I-5 Alternatives disturbance limits.

Camp Pendleton operates seven childcare centers, three youth centers and three community centers on the Base (Sandra Jensen, Assistant Branch Manager Lifelong Learning, April 14, 2002). The San Onofre Youth Center, San Onofre Community Center and a childcare center are in Area 51 off Basilone Road in the northwest part of the Base, and in the SOCTIIP study area. However, these facilities are not within the disturbance limits or within 76 m (250 ft) of the disturbance limits of any SOCTIIP build Alternatives. The remainder of these facilities are in the southeast part of the Base and are not in the SOCTIIP study area.

Flood Control Facilities

Regional flood control in the SOCTIIP study area is under the jurisdiction of the Orange County Flood Control District. There are no flood control facilities in the disturbance limits for the SOCTIIP build Alternatives.

4.24.1.2 Utilities

There are a number of utility facilities and utility lines in the SOCTIIP study area. These utility lines are electric, natural gas, fuel transport, water for domestic use and irrigation, wastewater transmission, and telephone, communication and cable television cables. Utility facilities include electrical substations, wells, sewage treatment facilities and radio towers. A description of the utility providers and a summary of the major existing utility lines and facilities in the vicinity of the SOCTIIP build Alternatives is provided in this Section. Major utility lines and facilities that are near or crossed by the SOCTIIP build Alternatives are shown in Figure 4.24-3. Detailed locations of these utilities facilities are shown on maps on file at the TCA office.

Electricity

Electricity providers with facilities in the SOCTIIP study area are Southern California Edison (SCE) and San Diego Gas & Electric (SDG&E). SCE owns and maintains four overhead 220 kilovolt (kV) electrical transmission lines on two sets of towers which extend north from the San Onofre Nuclear Generating Station (SONGS) which is located west of I-5 in San Diego County, south of the Orange County line. These high power transmission lines are the San Onofre to Santiago Nos. 1 and 2, San Onofre to Chino, and San Onofre to Serrano, and are shown along with the SONGS on Figure 4.24-3.

SDG&E owns and operates two tower lines and one H-frame line which extend from the SONGS north on the east side of the SCE lines described above. These high power lines are also shown on Figure 4.24-3. The two tower lines include two 230 kV lines (easterly towers) and 138 kV and 69 kV lines (westerly towers). The H-frame carries 138 kV lines. These high power transmission lines provide electrical service to large numbers of users across an extensive area of southern California. SDG&E provides service to San Diego and southern Orange Counties. SCE provides service to parts of Los Angeles, Riverside and San Bernardino Counties.

The SDG&E Cristianitos electrical substation is 1.1 km (0.7 mi) north of the Orange/San Diego County line. A second SDG&E substation, the Talega substation, is on Camp Pendleton, straddling the Orange/San Diego County line. The Cristianitos and Talega substation property limits are within the disturbance limits of the alignments of the FEC-W, FEC-M and A7C-FEC-M Alternatives. However, the substation facilities are not within the disturbance limits. The Talega substation, a 230 kV facility, provides power to most of south Orange County including San Juan Capistrano and Laguna Niguel. A 69 kV transmission line runs between the two substations and a 138 kV line extends north from the Talega substation, bypassing the Cristianitos substation. Additionally, there are six lines extending to and from the Talega substation, including two 230 kV lines going out, and three 138 kV lines and one 69 kV line coming in.

There are a number of lower voltage SDG&E and SCE electrical lines in the SOCTIIP study area. These lines range from 12 kV to 220 kV.

Natural Gas

Natural gas providers with facilities in the vicinity of the SOCTIIP build Alternatives are Southern California Gas (SCG) Company and SDG&E. Natural gas utilities in the SOCTIIP study area include 5.1 centimeter (cm) (2 inch (in)), 7.6 cm (3 in), 10.2 cm (4 in), 15.2 cm (6 in), 20.3 cm (8 in), 25.4 cm (10 in), 30.5 cm (12 in) and 76.2 cm (30 in) pipelines.

Fuel Supply and Transport

Fuel transport in the SOCTIIP study area is provided by Kinder Morgan who pumps diesel, gasoline and jet fuel (turbine fuel) between San Diego and Orange through a 25.4 cm (10 in) line and a 40.6 (16 in) line on a varying pumping cycle. One or both of the two fuel lines cross the alignments of the following Alternatives: FEC-W, FEC-M, CC, CC-ALPV, A7C-ALPV, A7C-FEC-M, AIO and I-5 Alternatives.

Water

The SOCTIIP study area in south Orange County is virtually 100 percent dependent on imported water supplied through the Metropolitan Water District of Southern California (Metropolitan). Water from northern California is transported via the California Aqueduct and from the Colorado River via the Colorado River Aqueduct. The Municipal Water District of Orange County (MWDOC) purchases this imported water from Metropolitan and wholesales the water to member agencies for storage and direct retail distribution to their customers. MWDOC member agencies in the SOCTIIP study area in Orange County are the Irvine Ranch Water District (IRWD), El Toro Water District (ETWD), Moulton Niguel Water District (MNWD), Santa Margarita Water District (SMWD), Capistrano Valley Water District (CVWD), South Coast Water District (SCWD) and the City of San Clemente (CSC).

Water lines in the SOCTIIP study area range in size from 10.2 cm to 167.6 cm (4 in to 66 in). The largest water line in the study area is the SMWD South County Pipeline, a 167.6 cm (66 in) domestic water line which extends from Lake Forest to San Clemente, as shown on Figure 4.24-3. Although water is retailed by the companies described above, some water distribution lines are owned privately or by municipalities. Rancho Mission Viejo Company, Rancho Santa Margarita Company, Irvine Ranch, Camp Pendleton, SOSB and the Cities of San Juan Capistrano and Laguna Beach also own a number of water lines in the SOCTIIP study area.

Two water wells at TRW, shown on Figure 4.24-3, provide the only source of potable water to this facility. Access to these wells is from a private road off Cristianitos Road.

The San Mateo Aquifer provides the sole source of potable water for the north part of Camp Pendleton and for the agricultural lease area on the Base near San Mateo Creek. The four water wells that supply all the potable water drawn from the San Mateo Aquifer are shown on Figure 4.24-3. Historical production for these wells has fluctuated between 313 hectare feet per year (hafy) (774 acre feet per year (afy)) to 540 hafy (1,335 afy). Recent extraction rates are approximately 445 hafy (1,100 afy). Irrigation water is provided by six wells on or near the leased farmland. Irrigation production has ranged from 158 hafy (390 afy) to 494 hafy (1,220

afy). The potable water wells are from 762 m (2,500 ft) to 884 m (2,900 ft) from the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives. The six irrigation water wells range in distance of 640 m (2,100 ft) to 1,097 m (3,600 ft) from the disturbance limits of these Alternatives.

The County of Orange Public Facilities and Resources Department (OCPFRD), SCWD, and the Cities of San Clemente, San Juan Capistrano, Lake Forest, Laguna Hills, Mission Viejo, Laguna Niguel and Dana Point own a number of storm drains in the SOCTIIP study area which range in size from 38.10 cm (15 in) to 426.72 cm (168 in). The largest storm drain in the study area is a 4.3 meter (14 foot) storm drain catch basin crossing Vera Cruz northwest of Avenida Pico running parallel to Avenida Pico.

Waste Water Management

Wastewater collection, treatment and disposal in the SOCTIIP study area, exclusive of Camp Pendleton, is managed by the South Orange County Wastewater Authority (SOCWA) for its respective member agencies. The purpose of SOCWA is to "...plan for, acquire, construct, maintain, repair, manage, operate and control facilities for the collection, transmission, treatment and disposal of wastewater, the reclamation and use of wastewater for beneficial purposes, and the production, transmission, storage and distribution of non-domestic water." (SOCWA website, http://socwa.com/). SOCWA member agencies in the study area are the Cities of San Clemente and San Juan Capistrano, ETWD, IRWD, MNWD, SMWD and SCWD.

The SMWD Chiquita Wastewater Reclamation Plant (CWRP) in Chiquita Canyon, north of Ortega Highway, is within the disturbance limits of the A7C-ALPV Alternative. The CWRP access road is within the disturbance limits of the A7C-ALPV, CC, CC-ALPV and AIO Alternatives. The CWRP has an existing capacity of 22.5 million liters per day (mld) (6 million gallons per day (mgd)) with a planned ultimate capacity of 79 mld (21 mgd). The only access to the CWRP is from the Chiquita Access Road and access must be maintained 24 hours per day.

Existing sewer lines in the SOCTIIP study area range from 10.2 cm (4 in) to 137.2 cm (54 in). There are a number of reclaimed waterlines in the SOCTIIP study area, ranging in size from 15.2 cm (6 in) to 40.6 cm (16 in).

Camp Pendleton provides wastewater collection, treatment and disposal for the areas in its boundaries. The sewer system of forced and gravity mains transports sewage to one of nine sewage treatment plants (STPs) on the Base. Following primary treatment and secondary treatment by trickling filters, the effluent is returned through percolation ponds to the groundwater basins. Disposal of the effluent from the STPs is regulated by the SDRWQCB. STP 12, near the confluence of Cristianitos and San Mateo Creeks, and the percolation ponds, approximately 0.8 km (0.5 mi) from I-5 on the southeast side of San Mateo Creek, serve the north part of Camp Pendleton. All wastewater generated in the area is collected and treated at STP 12. The current design flow rate for STP 12 is 132 mld (0.35 mgd). The STP 12 and ponds are east of, and outside the disturbance limits of, the alignments of the FEC-W, FEC-M and A7C-FEC-M Alternatives.

Camp Pendleton maintains and operates 14.2 ha (35 ac) of percolation ponds for STP 12 on the agricultural lease area in San Mateo Valley. A concrete diversion structure conveys effluent to the ponds. The ponds are approximately 0.8 km (0.5 mi) from I-5, southeast of San Mateo Creek, out of the 100-year floodplain and downstream of the potable water wells in this area. Some of the three effluent/evaporation ponds at STP 12 are used interchangeably as an equalization or emergency storage basin. Effluent is conveyed from the equalization basin through the effluent pipeline to the percolation ponds. These percolation ponds are not within the disturbance limits of any SOCTIIP build Alternatives.

There are also twelve percolation ponds, which together encompass 12.4 ha (30.5 ac), approximately 12 to 15 m (40 to 50 ft) north of the existing right-of-way for I-5, generally south of San Onofre Creek. Treated water from existing STPs 10 and 11 along Basilone Road is currently being percolated in these ponds. One of these percolation ponds is within the disturbance limits of the FEC-W, FEC-M and A7C-FEC-M Alternatives for a proposed extended detention basin (EDB).

Communications and Radio Antennae

Communications providers in the SOCTIIP study area are Pacific Bell, AT&T Fiber Optic, AT&T Wireless, MCI Communications, TRW, Sprint and Cox Communications, all of which have communication cables in the study area. There are also radio transmitters and antennae for data transmission in the SOCTIIP study area. These types of facilities owned by Pacific Bell, Saddleback College and SDG&E are within the disturbance limits of the A7C-ALPV Alternative.

4.24.1.3 Emergency Evacuation

The SONGS is approximately 2.41 km (1.5 mi) south of the Orange /San Diego County border and south of the disturbance limits of the southernmost SOCTIIP build Alternatives. The SONGS emergency alert system, which is tested once a year, includes 49 sirens scattered throughout an evacuation zone of a 16.1 km (10 mi) radius of the facility. This evacuation zone includes San Juan Capistrano, Dana Point, San Clemente, part of unincorporated south Orange County and part of MCB Camp Pendleton in San Diego County. The sirens are a signal to the public to seek information from the radio or television. If an evacuation were necessary, people would be directed to evacuation routes away from the SONGS. I-5 is the major evacuation route from SONGS and provides the only non-signalized evacuation route between SONGS and I-405 to the north. Ortega Highway, north of SONGS, provides a two-lane route from I-5 to the east. Most surface roads between SONGS and Ortega Highway do not provide through access to Ortega Highway. Cristianitos Road between Avenida Pico and Ortega Highway is a private road with locked gates. I-5 provides the only evacuation route from SONGS to State Route 76 (SR 76) to the south, which does not cross MCB Camp Pendleton. SR 76 provides a route from I-5 to the east.

4.24.2 METHODOLOGY RELATED TO PUBLIC SERVICES AND UTILITIES

4.24.2.1 Public Services

The physical impacts of the SOCTIIP build Alternatives related to public services facilities would be largely limited to the area of disturbance. Affected public services providers were contacted via mail and asked to provide the locations of their current and planned services and facilities in the study area of the SOCTIIP Alternatives. This correspondence is on file at the TCA. A list of contacted agencies is provided in the Public Services and Utilities Technical Report. Direct impacts to public services facilities were determined by identifying facilities near the alignments of the SOCTIIP build Alternatives, overlaying the disturbance limits for each alternative on aerial photographs and determining the facilities within the disturbance limits. It is assumed that facilities within the disturbance limits that can not be avoided would be removed or moved to construct the project and that appropriate mitigation for these identified impacts would be provided as described later in Section 4.24.4 (Mitigation Measures). In addition to locations of existing and planned facilities, service providers were asked to supply the following information:

- Types and levels of service currently provided by the agencies in the SOCTIIP area.
- Generation rates used by the agencies in estimating demand associated with planned residential, commercial, industrial and public uses.
- Specific demand generation estimation tables or formulas.
- Planned increases or decreases in service levels in the SOCTIIP area.
- Potential adverse or beneficial impacts of the SOCTIIP Alternatives to the agencies' services and facilities.
- Sufficiency of the agencies' existing facilities and services to accommodate the SOCTIIP Alternatives.
- Specific recommended or suggested mitigation measures that would avoid or substantially reduce potential adverse impacts.

4.24.2.2 Utilities

The physical impacts of the SOCTIIP build Alternatives related to public utilities would be largely limited to the area of disturbance. To determine the potential impacts of the SOCTIIP Alternatives related to utilities, a list was developed of utility providers that service the area crossed by the SOCTIIP build Alternatives. Each potentially affected utility provider was sent a letter requesting utility facility maps and property rights information for the area in and adjacent to the disturbance limits of the SOCTIIP Alternatives. A map and list were then compiled of all utilities within and adjacent to the disturbance limits of each SOCTIIP build alternative. Field reviews were conducted to verify the accuracy of the information and meetings were held with

utility company personnel, as appropriate. Using Geographic Information Systems (GIS) computer technology, these utilities facilities and their property limits, as appropriate, were overlaid on aerial photographs and the disturbance limits of the various build alternatives were added. The closest distance from the edge of the disturbance limits of the build alternatives to the edge of the utilities facilities or property limits was measured within the GIS program.

Utilities that are within or cross the disturbance limits would be removed, relocated or protected in place during construction. In the preliminary design and in conjunction with the utility providers, all utility lines and facilities within the disturbance limits were identified. During final design, a determination would be made regarding which of the identified utilities will be relocated and plans for the relocations would be developed. In further consultation with utility providers, some obsolete utilities may be removed at the request of the provider. Reports, contacts and other relevant correspondence and documentation for the preparation of this utilities impacts analysis are on file at the TCA.

4.24.3 IMPACTS RELATED TO PUBLIC SERVICES AND UTILITIES

4.24.3.1 General Overview of Construction and Long Term Impacts Related to Public Services

As described in Section 4.24.1 (Affected Environment), public services in the SOCTIIP study area include fire protection and emergency medical services, law enforcement, solid waste disposal services, schools, public facilities and flood control. The public services in the vicinity of the alignments of the SOCTIIP build Alternatives were shown previously on Figure 4.24-1. The potential impacts of the SOCTIIP Alternatives on these public services are described in this section.

The direct temporary (during construction) and permanent (acquisition of right-of-way) impacts on public services related to use of right-of-way are summarized in the following tables:

- Table 4.24-1: Impacts on Schools.
- Table 4.24-2: Impacts on Prima Deshecha Landfill.
- Table 4.24-3: Impacts on Public Facilities (City Halls, Post Offices, Sports Fields).

The build Alternatives do not include the construction of any residential or commercial uses and, therefore, would not result in increased population or demand for public services in the study area. The analysis of impacts of potential impacts of the SOCTIIP Alternatives on public services focuses on direct and indirect impacts on services as a result of construction and operation of the build Alternatives.

Many of the SOCTIIP build Alternatives do not achieve a balance in earthwork (i.e. the volume of cut does not equal the volume of fill). With the exception of the I-5 Alternative, it is anticipated that for cases where the imbalance is 3 to 4 million cubic meters or less, an earth work balance can be achieved within the established disturbance limits. Balance would be achieved by making slight modifications to road grades and adjusting the top and toe location of graded slopes. For alternatives with an imbalance greater than 4 million cubic meters, off-site

measures will be required such as importing if the project requires additional material. This type of balance would not be achieved with the I-5 Alternative because the grade of the surrounding developed land uses could not be adjusted.

In this Section (Public Services and Utilities) the analysis of direct impacts related to sanitary landfills focuses on the reduction in capacity and lifespan of the affected landfill, specifically the Prima Deshecha Landfill. Some SOCTIIP build Alternatives will cross areas of the Landfill that contain previously landfilled waste. In these cases, the amount of emplaced waste that will need to be excavated and redeposited in the active area of the Landfill has been provided. Section 4.17 (Hazardous Materials and Hazardous Waste Sites) provides an analysis of the potential impacts related to excavation, movement and disposal of emplaced waste as a result of those SOCTIIP build Alternatives.

4.24.3.2 General Overview of Construction and Long Term Impacts Related to Utilities

As described in Section 4.24.1 (Affected Environment), there are a number of utility lines and utility facilities in the SOCTIIP study area. These are electric, natural gas, fuel transport, water for domestic use and irrigation, wastewater transmission and telephone and cable television lines. Utility facilities are electrical substations, wells, sewer pump stations, water pressure reducing stations, sewage treatment facilities, percolation ponds and radio transmitters, antennae and appurtenant facilities.

During construction of any of the SOCTIIP build Alternatives, utilities which would potentially be impacted at locations where lines and facilities are within and adjacent to the disturbance limits would be relocated or protected in place. In the preliminary design that is the basis for this analysis and in conjunction with the utility providers, all utility lines and facilities within and adjacent to the disturbance limits were identified. This level of detail is adequate and appropriate for the evaluation of the alternatives and selection of a preferred alternative. During final design, a determination would be made as to which of the identified utilities would be relocated and plans for the relocations would be developed. In further consultation with utility providers, some obsolete utility facilities may be removed at the request of the provider. Utilities that are not removed or relocated will be protected in place during construction. Relocation, removal and protection in place are common to all the SOCTIIP build Alternatives. During relocation and removal, as well as other construction activity, there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These potential impacts would be adverse and the potential for their occurrence exists with all the SOCTIIP build Alternatives.

The direct temporary (during construction) and permanent (acquisition of right-of-way) impacts on utility facilities related to use of right-of-way are summarized in the following tables:

- Table 4.24-4: Impacts on Chiquita Water Reclamation Plant and Access Road.
- Table 4.24-5: Impacts on Electrical Substations.
- Table 4.24-6: Impacts on Electrical Towers and Large Poles.
- Table 4.24-7: Impacts to the San Onofre Percolation Ponds.

For each SOCTIIP build alternative, a table is provided in Appendix J that lists the utility lines and facilities within and adjacent to the area of disturbance by type of utility, the provider or owner of the utility and the location of the utility. These utility lines and facilities would either be relocated, removed or protected in place during construction and, as described earlier, the potential exists for these utilities to be damaged or for service to be interrupted during relocation and removal activity. Any other potential impacts related to utilities and utility facilities, if anticipated, are described under each alternative.

Impacts related to spills and substances that could potentially be washed from the surfaces of the build Alternatives and could potentially affect the water quality of waterways or aquifers are assessed in the Runoff Management Plan. These potential impacts related to water quality are addressed in Section 4.9 (Water Quality) of this EIS/SEIR.

The build Alternatives do not include the construction of any residential or commercial uses and, therefore, would not result in increased population or demand for public utilities in the study area. The analysis of impacts of potential impacts of the SOCTIIP Alternatives on public utilities focuses on direct and indirect impacts on services as a result of construction and operation of the build Alternatives.

4.24.3.3 Far East Corridor-West (FEC-W) Alternative

Public Services

Fire Protection and Emergency Medical Services

The FEC-W Alternative would have both beneficial and adverse impacts on the ability of the OCFA to provide services in the SOCTIIP study area. The ability to move OCFA resources from one area to another would be enhanced by the improved transportation network and paved road access would be improved to areas not currently accessible to emergency equipment. This Alternative may also provide an effective barrier to the spread of wildfire in currently undeveloped areas. This benefit would also apply to land within Marine Corps Base (MCB) Camp Pendleton.

The OCFA has identified several potential adverse impacts of the FEC-W-Initial. The risk of wildfires would increase during construction and operation of this Alternative because approximately 21.2 kilometers (km) (13.2 miles (mi)) of this alignment cross undeveloped land, covered with both native and non-native vegetation that is highly flammable during the dry season. Also, there are few roads and very little irrigated landscape in these areas that could act as fire breaks. Access to these undeveloped areas is limited, generally available only through the existing fire road grid, which precludes easy access to this area of increased fire risk. The potential exists for access to the existing fire road grid to be blocked during construction or by the completed road which would be a potential adverse impact of this Alternative. The potential for non-fire-related medical emergencies would increase with the presence of construction workers and heavy machinery during construction of the project and with the presence of vehicles during operation of the corridor. In the case of such emergencies, limited or blocked access, as previously described, would also be an adverse impact of this Alternative. These

adverse impacts related to fire protection would also apply to land within MCB Camp Pendleton serviced by the Camp Pendleton Fire Department. Adverse impacts related to emergency medical service would also apply to land on MCB Camp Pendleton north of Las Pulgas Road, which is serviced by the OCFA through an agreement with the Base and the County of San Diego.

The potential beneficial and adverse impacts of the FEC-W-Ultimate on the ability of the OCFA to provide services in the SOCTIIP study area are essentially the same as for the FEC-W-Initial. The FEC-W-Ultimate may provide a slightly more effective barrier to the spread of wildfire in currently undeveloped areas than the FEC-W-Initial because it would provide a wider paved surface barrier to wildfire than the FEC-W-Initial. This benefit would also apply to land within Marine Corps Base (MCB) Camp Pendleton.

During construction, the increased risk of wildfires, potential blockage of the existing fire road grid and potential for increased non-fire-related emergencies among construction workers would be the same for the FEC-W-Ultimate as for the FEC-W-Initial.

There would be no physical impacts to existing fire stations related to the FEC-W Alternative, as there are no fire stations within the disturbance limits for this Alternative.

Law Enforcement

The CHP would be responsible for providing primary law enforcement services on the FEC-W Alternative because the corridor would be owned by Caltrans and would be a state highway. The CHP is responsible for providing law enforcement on all state highways and, as part of its annual budget, allocating staff and funds to ensure adequate services are provided on the state highway system. The CHP has indicated that additional officers would be required to service this Alternative (correspondence with Lt. Steve Deck, June 8, 2001). This would not be expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

MCB Camp Pendleton is currently under federal jurisdiction. Legislation (Section 2851 of the Fiscal Year 1999 National Defense Authorization Act (H.R. 3616)) has been passed which authorizes the Secretary of the Navy to grant an easement to the TCA should this Alternative be selected for implementation. If such an easement is granted to the TCA, concurrent law enforcement jurisdiction would be transferred to the State of California for the segment of this Alternative that is approved for construction within MCB Camp Pendleton. Concurrent law enforcement jurisdiction on the corridor segment that crosses Camp Pendleton would allow the CHP to provide law enforcement service on this segment. Non-federal law enforcement jurisdiction on the corridor segment through MCB Camp Pendleton is necessary to ensure the provision of adequate law enforcement service on this segment. It is anticipated that the MCB Camp Pendleton Provost Marshall patrol staff would provide back-up law enforcement service on the segment though Camp Pendleton through mutual aid agreements with the CHP. Similar agreements are currently in effect for the segment of I-5 that traverses MCB Camp Pendleton. It is not anticipated that Provost Marshall patrol staff would be added to respond to additional

mutual aid calls that may be generated with the FEC-W Alternative. Therefore, this Alternative would not result in adverse impacts related to MCB Camp Pendleton law enforcement services.

The Sheriff's Department would not be responsible for law enforcement service and patrol on the FEC-W Alternative. The Sheriff's Department uses a formula based on population to estimate calls for service in a particular area. The FEC-W Alternative is a transportation project and does not include the construction of residences or businesses that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, this Alternative would not result in impacts on the ability of the Sheriff's Department to provide services to contracting communities (sources: Orange County Sheriff-Coroner Department letter (July 17, 2001), and Department of California Highway Patrol letter (July 8, 2001).

There would be no physical impacts to any existing law enforcement facilities related to this Alternative, as there are no law enforcement facilities within the disturbance limits.

Solid Waste Disposal Services

The FEC-W Alternative would not result in the generation of excess soil and rock material. Therefore, this Alternative would not result in adverse impacts on landfill capacity associated with disposal of excess soil and rock during construction.

The operation of the FEC-W Alternative would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the FEC-W Alternative during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the FEC-W Alternative.

Schools

As shown on Table 4.24-1, there are no school facilities or school property within the disturbance limits of the FEC-W Alternative. Therefore, there would be no adverse direct impacts related to schools as a result of the FEC-W Alternative.

The FEC-W Alternative is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, this Alternative would not result in impacts on the ability of area school districts to provide services.

Public Services Facilities

There are no existing or planned public services facilities in the disturbance limits of the FEC-W Alternative. Therefore, this Alternative would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

As shown in Table 5.9-1 in Appendix J, there are no flood control facilities within the disturbance limits of the FEC-W Alternative. Therefore, this Alternative would not result in adverse impacts related to flood control facilities.

Utilities

Utility Lines and Facilities

Table J-1, in Appendix J, lists the utilities in and adjacent to the disturbance limits of the FEC-W Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains and telephone, communication and cable television lines. As described in Section 4.24.3.2 (General Overview of Utilities), during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur during construction of the FEC-W Alternative, would be adverse.

The FEC-W Alternative would require the temporary use of 0.5 ha (1.3 ac) and permanent acquisition of 0.5 ha (1.2 ac) of land at the Cristianitos substation as shown in Table 4.24-5. The Cristianitos substation facility itself will not be directly impacted. It is possible that SDG&E could expand or modify the Cristianitos substation in the future based on their facility plans in this part of their network. The FEC-W Alternative would directly impact part of the area west of the substation and could preclude future development in this area. This impact to the Cristianitos substation would be adverse.

The FEC-W Alternative would require the temporary use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the Talega substation as shown in Table 4.24-5. The Talega substation facility itself will not be directly impacted but the access road will be realigned as part of the project. This impact to the Talega substation would be adverse.

High Voltage Electrical Transmission Lines and Towers/Large Poles

As described in Section 4.24.1 (Affected Environment), SCE and SDG&E own and operate high voltage transmission lines (138 kilovolt (kV), 220 kV and 230 kV) and associated large towers or large poles (that accommodate 138 kV and 220 kV) lines that provide electrical service to large numbers of users across an extensive area of southern California. SDG&E provides service to San Diego County and southern Orange County, while SCE provides service to parts of Los Angeles, Riverside and San Bernardino Counties. Towers/large poles within the disturbance limits of the FEC-W Alternative alignment would need to be relocated. The relocation process is

under the purview of the affected utility and is subject to the rules and regulations as set forth by the Public Utilities Commission. During planned relocation activities, customers could be temporarily served through other parts of the electrical grid. As with all utilities in the disturbance limits, the potential exists for service to be temporarily interrupted or for the utilities to be damaged during relocation or construction activities. Should these potential impacts occur to these high voltage lines, service outage could be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts during construction of this Alternative associated with these high voltage lines would be adverse.

In addition to relocating utility towers/large poles from the disturbance limits, it is anticipated that in some cases, additional towers/large poles will need to be installed outside the alignment disturbance limits. These additional towers/large poles would allow for changing the direction of the utility line alignment on one or the other side of the build alternative alignment. The affected utility providers will not consult on the final design of relocations and additions of towers/large poles until an alternative has been selected. However, for these anticipated tower relocations/additions, TCA utility engineers have estimated the maximum number of tower/large poles that may be required, the maximum footprint of temporary and permanent disturbance outside the build alternative alignment disturbance limits, the maximum permanent disturbance area of the towers/large poles and the maximum permanent disturbance area for the permanent tower/large pole access roads. For the FEC-W Alternative, a maximum of 11 towers, 33 poles and 2 pair poles would need to be relocated or added. The maximum area of potential impacts for these relocations/additions would be 21.6 ha (53.7 acres (ac)), including 494.7 square meters (sq m) (5325 square feet (sq ft)) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. The area of potential impact also includes a maximum of 2.1 ha (5.2 ac) of permanent impacts for utility access roads. These estimates for the FEC-W Alternative are shown on Table 4.24-6.

Percolation Ponds and Wells

One of the twelve percolation ponds on MCB Camp Pendleton, south of San Onofre Creek, is within the disturbance limits of the FEC-W Alternative for an extended detention basin (EDB). This Alternative would result in the temporary use of the percolation pond of 0.7 ha (1.7 ac) and permanent acquisition of approximately 0.4 ha (1.0 ac) of the pond. This would be an adverse impact of this Alternative related to this percolation pond. Refer to Table 4.24-7 for a summary of these impacts.

There are no irrigation or potable water wells in the disturbance limits of the FEC-W Alternative. Therefore, there would be no potential adverse impacts to wells related to this Alternative.

Emergency Evacuation

FEC-W-Initial

As described previously in Section 4.24-1 (Affected Environment), I-5 is the major emergency evacuation route for SONGS, and is virtually the only non-signalized evacuation route between SONGS and I-405 to the north. Ortega Highway, north of SONGS, provides a route from I-5 to the east that is two-lane and non-signalized over most of its length. The FEC-W- would provide an additional evacuation route from I-5, immediately south of San Clemente, to Ortega Highway and to State Route 241 (SR 241), north of Ortega Highway and east of I-5. To the north, SR 241 connects with State Route 91 to the east, affording access to Riverside and Los Angeles Counties and connects to I-5 and I-405 to the west, providing access to the north and northwest, respectively. The FEC-W-Initial would have the beneficial effect of increasing the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason.

FEC-W-Ultimate

The beneficial effects of the FEC-W-Ultimate related to emergency evacuation would be the same as described for the FEC-W-Initial, except that the FEC-W-Ultimate would allow for faster evacuations because this Alternative has more travel lanes than the FEC-W-Initial.

4.24.3.4 Far East Corridor – Modified (FEC-M) Alternative

Public Services

Fire Protection and Emergency Medical Services

The types of beneficial and adverse impacts related to fire protection and emergency medical services under the FEC-M Alternative are the same as described in Section 4.24.3.3 for the FEC-W Alternative. Beneficial impacts include the enhanced ability to move fire protection resources from one area to another using the corridor and the fire break properties the road would provide in the event of a wildfire. Adverse impacts include an increased risk of wildfires in currently undeveloped areas and the potential of blocked access to the existing fire road grid in undeveloped areas, which could also interfere with emergency medical response during construction and operation of the FEC-M Alternative. The FEC-M Alternative crosses approximately 21.8 km (13.5 mi) of undeveloped land that is susceptible to wildfires.

There would be no physical impacts to existing fire stations related to this Alternative, as there are no fire stations within the disturbance limits for this Alternative.

The FEC-M-Ultimate may provide a slightly more effective barrier to the spread of wildfire in currently undeveloped areas than the FEC-M-Initial because it would provide a wider paved surface barrier to wildfire than the FEC-M-Initial. This benefit would also apply to land within Marine Corps Base (MCB) Camp Pendleton.

Law Enforcement

The CHP would be responsible for providing primary law enforcement services on the FEC-M Alternative. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

MCB Camp Pendleton is currently under federal jurisdiction. Should the FEC-M Alternative be selected for implementation, the Department of the Navy (DON) would be requested to grant an easement to the TCA for right-of-way through MCB Camp Pendleton. If such an easement is granted to the TCA, concurrent law enforcement jurisdiction would be transferred to the State of California for the segment of the Alternative that is approved for construction within MCB Camp Pendleton. Concurrent law enforcement jurisdiction on the corridor segment that crosses Camp Pendleton would allow the CHP to provide law enforcement service on this segment. Non-federal law enforcement jurisdiction on the corridor segment through MCB Camp Pendleton is necessary to ensure the provision of adequate law enforcement service on this segment. It is anticipated that the MCB Camp Pendleton Provost Marshall patrol staff would provide back-up law enforcement service on the segment though Camp Pendleton through mutual aid agreements with the CHP. It is not anticipated that Provost Marshall patrol staff would be added to respond to additional mutual aid calls that may be generated with the FEC-M Alternative. Therefore, this Alternative would not result in adverse impacts related to MCB Camp Pendleton law enforcement services.

The Sheriff's Department would not be responsible for law enforcement service and patrol on the FEC-M Alternative. This Alternative is a transportation project and does not include the construction of residences or businesses that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, the FEC-M Alternative would not result in impacts on the ability of the Sheriff's Department to provide services to contracting communities.

There would be no physical impacts to any existing law enforcement facilities related to the FEC-M Alternative, as there are no law enforcement facilities in the disturbance limits.

Solid Waste Disposal Services

The FEC-M-Initial would have an imbalance in earthwork, with 3.3 mcm (4.3 mcy) more cut material than fill. The FEC-M-Ultimate would have 3.0 mcm (3.9 mcy) more cut material than fill. However, as described earlier in this section, balance of this difference between cut and fill will be achieved within the established disturbance limits by making slight modifications to road grades and adjusting the top and toe location of graded slopes. Therefore, this Alternative would not result in adverse impacts on landfill capacity associated with disposal of excess soil and rock during construction.

The operation of the FEC-M Alternative would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the FEC-M

Alternative during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the FEC-M Alternative.

Schools

As shown on Table 4.24-1, there are no school facilities or property within the disturbance limits of the FEC-M Alternative. Therefore, there would be no adverse direct impacts related to schools as a result of the FEC-M Alternative.

The FEC-M Alternative is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, this Alternative would not result in impacts on the ability of area school districts to provide services.

Public Services Facilities

There are no existing or planned public services facilities in the disturbance limits of the FEC-M Alternative. Therefore, this Alternative would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

As shown in Table 5.10-1 in Appendix J, there are no flood control facilities within the disturbance limits of the FEC-M Alternative. Therefore, this Alternative would not result in adverse impacts related to flood control facilities.

Utilities

Utility Lines and Facilities

Table J-2 in Appendix J lists the utilities in and adjacent to the disturbance limits of the FEC-M Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains and telephone, communication and cable television lines. As described in Section 4.24.3.2, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur during construction of the FEC-M Alternative, would be adverse.

The existing access road to the SDG&E Cristianitos substation would be realigned as part of the FEC-M Alternative. As shown in Table 4.24-5, the FEC-M-Initial would require the temporary use of 1.4 ha (3.4 ac) and permanent acquisition of 0.7 ha (1.7 ac) of land at this substation. The

FEC-M-Ultimate will result in the temporary use of 1.4 ha (3.4 ac) and permanent acquisition of 1.0 ha (2.5 ac) at the Cristianitos substation. The Cristianitos substation facility itself will not be directly impacted by this Alternative. It is possible that SDG&E could expand or modify the Cristianitos substation in the future based on their facility plans in this part of their network. The FEC-M Alternative would directly impact part of the area east of the substation and could preclude future development in this area. This impact to the Cristianitos substation would be adverse.

The FEC-M Alternative would require the temporary use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the Talega substation as shown in Table 4.24-5. The Talega substation facility itself will not be directly impacted but the access road will be realigned as part of the project. This impact to the Talega substation would be adverse.

High Voltage Electrical Transmission Lines and Towers

There are towers/large poles associated with 138 kV, 220 kV and 230 kV lines in the disturbance limits of the FEC-M Alternative. For the FEC-M Alternative, a maximum of 11 towers, 36 poles and 2 pair poles would need to be relocated or added. The maximum area of potential impacts for these relocations/additions would be 20.8 ha (51.6 ac), including 501.7 sq m (5400 sq ft) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. The area of potential impacts also includes a maximum of 2.2 ha (5.2 ac) of permanent impacts for utility access roads. These estimates for the FEC-M Alternative are shown on Table 4.24-6. Should service from these lines be temporarily interrupted or the utilities damaged during construction, service outage could be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts associated with these high voltage lines would be adverse.

Percolation Ponds and Wells

One of the twelve percolation ponds on MCB Camp Pendleton, south of San Onofre Creek is within the disturbance limits of the FEC-M Alternative for an extended detention basin (EDB). This Alternative would result in the temporary use of the percolation pond of 0.7 ha (1.7 ac) and permanent acquisition of approximately 0.4 ha (1.0 ac) of the pond. This would be an adverse impact of this Alternative related to this percolation pond. Refer to Table 4.24-7 for a summary of these impacts.

There are no irrigation or potable water wells in the disturbance limits of the FEC-M Alternative. Therefore, there would be no potential adverse impacts to wells related to this Alternative.

Emergency Evacuation

FEC-M-Initial. The beneficial effects of the FEC-M-Initial related to emergency evacuation would be essentially the same as described in Section 4.24.2.3 for the FEC-W-Initial. This Alternative would have the positive effect of increasing the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason.

FEC-M-Ultimate. The beneficial effects of the FEC-M-Ultimate related to emergency evacuation would be the same as described for the FEC-M-Initial, except that the FEC-M-Ultimate would allow for faster evacuations because this Alternative has more travel lanes than the FEC-M-Initial.

4.24.3.5 Central Corridor – Complete (CC) Alternative

Public Services

Fire Protection and Emergency Medical Services

CC-Initial. The CC-Initial has the same types of beneficial and adverse impacts related to fire protection and emergency medical services as described in Section 4.24.3.3 for the FEC-W-Initial, except that there are no impacts related to MCB Camp Pendleton. Beneficial impacts include the enhanced ability to move fire protection resources from one area to another using the corridor and the fire break properties the road would provide in the event of a wildfire. Adverse impacts include an increased risk of wildfires in currently undeveloped areas and the potential of blocked access to the existing fire road grid in undeveloped areas, which could also interfere with emergency medical response during construction and operation of the CC-Initial. The CC-Initial crosses approximately 15.8 km (9.8 mi) of undeveloped land that is susceptible to wildfires.

The CC-Initial would result in impacts to fire protection and emergency medical services related to I-5 ramp closures. The CC-Initial would include elimination of the direct access northbound I-5 on ramp at Avenida Presidio and the southbound I-5 off ramp at Avenida Palizada. To accommodate I-5 access, a one way frontage road system would be provided on each side of I-5 between El Camino Real and Avenida Pico so that vehicles could use the existing I-5 ramps from these two roads. OCFA Station No. 60 in San Clemente is at 100 Avenida Presidio, adjacent to the Avenida Presidio on ramp and in proximity to the Avenida Palizada off ramp.

The elimination of the Avenida Presidio on ramp to I-5 would increase the OCFA call response times in San Clemente. The proposed frontage road would absorb traffic that previously used Avenida Palizada. Additional stacking of vehicles on Avenida Pico could prevent OCFA patrol vehicles from re-routing around traffic in an emergency and could result in longer response times.

Impact to response times of the CC-Initial were determined by the OCFA. For a response to an accident on northbound I-5 south of Avenida Pico, elimination of the freeway access at Avenida Palizada and Avenida Presidio would increase response times from two minutes forty seconds to nine minutes (Phone conversation with Michael Rohde, Battalion Chief, OCFA, August 7, 2001). This response time exceeds the City of San Clemente standard of five minutes (Personal conversation Laura Reinsimar, City of San Clemente Manager's Office, August 7, 2001). For an accident on southbound I-5 south of Avenida Presidio, the response time would increase from four minutes to seven minutes ten seconds with the elimination of the ramps, which would also exceed the City standard. These increases in response times would be an adverse impact of the

CC-Initial. Elimination of the southbound off ramp at Avenida Palizada would create a delay for responding units returning to the Fire Station. Although this would not necessarily affect response times, the decreased efficiency in access to the fire station would be an additional adverse impact of the CC-Initial because of the increased travel time for returning units to be available for new calls.

There would be no physical impacts to any existing fire stations related to the CC-Initial, as there are no fire stations in the disturbance limits.

CC-Ultimate. The adverse impacts of the CC-Ultimate related to fire protection and emergency medical services would be the same as for the CC-Initial.

The CC-Ultimate may provide a slightly more effective barrier to the spread of wildfire in currently undeveloped areas than the CC-Initial because it would provide a wider paved surface barrier to wildfire than the CC-Initial.

Law Enforcement

The CHP would be responsible for providing law enforcement service and patrol on the CC Alternative. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process. The CHP has also indicated that elimination of the two I-5 ramps, as described previously for fire protection and emergency medical services, could potentially increase their response times (Phone conversation with Lt. Steve Deck, July 19, 2001).

The Sheriff's Department would not be responsible for law enforcement service and patrol on the CC Alternative. Therefore, this Alternative would not result in impacts to services provided by the Sheriff's Department that are directly related to the proposed road. However, as described previously for fire protection and emergency medical services, the CC Alternative would include the elimination of the northbound I-5 on ramp at Avenida Presidio and the southbound I-5 off ramp at Avenida Palizada, and implementation of a one way frontage road system on each side of I-5 between El Camino Real and Avenida Pico. These project components could potentially increase the call response time for the Sheriff's Station in San Clemente at 100 Avenida Presidio (Phone conversation with Lt. Fred Lasanti, Sheriff's Department, June 31, 2001). This is an adverse impact of the CC Alternative.

The City of San Clemente has a response time standard of five minutes for Priority 1 calls to the Sheriff's Department. For fiscal year 2000-2001, the average response time of the Sheriff's Department to these calls in San Clemente was 5.24 minutes, which exceeds the standard. The additional increase in response time associated with the CC Alternative would be an adverse impact of this Alternative.

The elimination of the southbound I-5 off ramp at Avenida Palizada would create a delay for patrol units returning to the Sheriff's station. Although this would not necessarily affect

response times, the decreased efficiency in access to the Sheriff's station would be an adverse impact of the CC Alternative.

The CC Alternative is a transportation project and does not include the construction of residences or businesses that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, this Alternative would not result in increased call volumes that could adversely impact the ability of the Sheriff's Department to provide services to contracting communities.

There would be no physical impacts to any existing law enforcement facilities related to the CC Alternative, as there are no law enforcement facilities within the disturbance limits.

Solid Waste Disposal Services

CC-Initial. The CC-Initial would have an imbalance in earthwork, with 2.7 mcm (3.5 mcy) more cut material than fill. However, as described earlier, balance of this difference between cut and fill will be achieved within the established disturbance limits by making slight modifications to road grades and adjusting the top and toe location of graded slopes. Therefore, this Alternative would not result in adverse impacts on landfill capacity associated with disposal of excess soil and rock during construction.

The CC-Initial bisects the Prima Deshecha Sanitary Landfill, as shown on Figure 4.24-4, and crosses Waste Management Unit (WMU) 2 which was previously landfilled and then closed. Existing Prima Deshecha Landfill operations facilities are within the disturbance limits of the CC-Initial alignment and will need to be relocated. Relocation of these structures would be an adverse impact of this alternative related to the Landfill.

The temporary use and permanent right-of-way impacts of the CC-Initial on the Landfill are summarized in Table 4.24-2. Analysis was conducted to assess the potential adverse impacts of SOCTIIP Alternatives which cross the Prima Deshecha Landfill. Because the Alternatives share common alignments across the Landfill, the analysis was conducted for the following three alignments; CC, A7C-ALPV and AIO. The analysis, conducted by Bryan A. Stirrat & Associates (October 2002) is provided in Appendix J of the Technical Report and is summarized in this discussion. Table 4.24-8 summarizes the key findings and effects of the build Alternatives on the Landfill. These impacts include:

- The amount of previously deposited waste in WMU2 which would need to be excavated and redeposited elsewhere in the Landfill.
- The reduction in mcm (mcy) in landfill capacity based on changes in topography associated with grading for the SOCTIIP build Alternatives.
- Lifespan reduction due to capacity reductions.

The landfilled material in the disturbance limits of the CC-Initial must be excavated prior to construction. Approximately 1.5 mcm (2.0 mcy) of landfill material would be excavated and redeposited in the active area of the Landfill. Additional soil material would be placed in the previously landfilled area and stabilized consistent with standard engineering practices. The

excavation of previously landfilled material could temporarily result in odors in this area as the material is removed, placed on trucks and redeposited in the active landfill areas in WMU1. However, these odors would be intermittent and would not be expected to extend beyond the boundaries of the landfill property. The reduction in capacity in Zone 4 would be 2.6 mcm (3.5 mcy) which would decrease the life of the landfill by 1.9 years as shown in Table 4.24-8. This is an adverse impact of the CC-Initial.

Any reduction in landfill capacity reduces the effective life of the landfill and results in the need to accelerate planning to compensate for the lost landfill capacity. Prior to capacity being reached, undeveloped land suitable for a landfill must be identified, purchased, designed and converted for landfilling purposes. Other disposal options may also be needed which could include transfer or export of the solid waste to another County facility or transport by truck or rail to an out-of-County landfill facility. The Prima Deshecha Sanitary Landfill has a finite capacity. Therefore, these planning issues regarding disposal after capacity is reached would need to be addressed in the future, whether or not the current capacity is reduced. However, the need to address these issues would be accelerated as a result of the impacts of the CC-Initial. For these reasons, reduction in the capacity and life of a landfill is an adverse impact of the CC-Initial.

In addition, the County is currently preparing a strategic plan for landfill/solid waste disposal, titled Regional Landfill Options for Orange County (RELOOC). This 40-year plan is based on various capacity/expansion assumptions, permit conditions and importation policies. The CC-Initial would potentially result in adjustments to the County's planning for solid waste disposal and require modifications to the RELOOC program. This would be an adverse impact of the CC-Initial.

The active fill area at the Landfill is within Zone 1 of the GDP 2001, described previously in Section 4.24.1.1. Capacity in Zone 1 is anticipated to be reached in 2019. When capacity is reached in Zone 1, landfill operations will move to Zone 4, which must be prepared to receive landfill material prior to capacity being reached in Zone 1. These preparation activities include excavation and stockpiling of soil for daily cover of refuse. Access to Zone 4 is from the Avenida La Pata access road to the west. The CC-Initial would create a barrier between this access road and Zone 4 to the east of the road. However, access under the corridor is included as part of the design of this Alternative. Therefore, there would be no adverse impacts to access from the CC-Initial.

The CC-Initial also crosses Zone 3 which contains native vegetation including coastal sage scrub and mixed chaparral. Zone 3 is proposed in the GDP 2001 to be retained in its native state and, therefore, the CC-Initial would result in an adverse impact on this proposed use. The Natural Environment Study (NES) further analyzes the impacts of the CC-Initial on the biological resources in Zone 3.

The CC-Initial crosses Zone 2 which consists of multi-use trails proposed for the landfill property, as described in the GDP 2001. This Alternative would create a barrier across the trail in two locations and eliminate the connections with other trails in the area. This would be an adverse impact.

The operation of the CC-Initial would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the CC-Initial during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the CC-Initial.

CC-Ultimate. With the CC-Ultimate, the same amount landfilled material which would be excavated and redeposited in the active area of the Landfill and the capacity of Zone 4 would be reduced by the same amount as for the CC-Initial as shown in Table 4.24-8. This would decrease the life of the landfill by 1.9 years.

Existing Prima Deshecha Landfill operations facilities are within the disturbance limits of the CC-Ultimate alignment and will need to be relocated. Relocation of these structures would be an adverse impact of the CC-Ultimate related to the Landfill.

The CC-Ultimate would have an imbalance in earthwork, with 4.8 mcm (6.3 mcy) more cut material than fill. However, as described earlier, between 3 and 4 mcm (3.9 and 5.2 mcy) of this material would be accommodated by balancing the cut and fill within the established disturbance limits. This balance would be achieved by making slight modifications to road grades and adjusting the top and toe location of graded slopes. The remaining 0.8 mcm (1.0 mcy) to 1.8 mcm (2.4 mcy) of excess material is assumed to be disposed of off site. Options for the disposal of excess material could include deposition of the material in area landfills, use of the material for daily cover over active waste disposal areas at area landfills or use as fill material for other construction projects. If the total of excess material generated during construction of this alternative were deposited in area landfills, this would result in a substantial, temporary increase in waste disposal at the affected landfills. Because landfill capacity is finite, deposition of the total excess fill in area landfills would constitute a substantial amount of material and would be considered an adverse impact of the CC-Ultimate related to landfill capacity.

The construction contractor could use any open landfill for disposal of excess material and/or waste associated with the project. It is anticipated that the contractor would likely use Prima Deshecha Sanitary Landfill because it is the closest landfill to the project area. However, the contractor may elect to transport excess materials to other landfills. Excess material would not be disposed of at MCB Camp Pendleton landfills, unless such disposal is approved in advance by agreement of the Environmental Security Department's Solid Waste Branch.

Schools

CC-Initial. As shown in Table 4.24-1, the CC-Initial would result in direct impacts to the San Clemente High and Ole Hanson Elementary Schools. Direct impacts to San Clemente High

School would include the permanent take of approximately 2.4 ha (6.0 ac) including part of a track adjacent to I-5, ball fields, tennis courts and handball courts and the temporary use of 2.8 ha (7.0 ac) of these facilities during construction. The direct impacts to these athletic facilities would require the displacement or closure of these facilities. There is no property on site or in proximity to the High School where these uses could be relocated. These impacts to San Clemente High School would be adverse.

The CC-Initial would result in the permanent take of 0.7 ha (1.7 ac) of the Ole Hanson Elementary School campus and the temporary use of 0.8 ha (2.0 ac) of the campus, as shown on Table 4.24-1. The take would require the permanent displacement of existing portable classrooms and the removal of part of the paved playground at the south area of the campus adjacent to I-5. The paved playground is the only outside paved play area available to students. These direct impacts to Ole Hanson Elementary School as a result of the CC-Initial would be adverse.

Table 4.24-1 shows the potential impacts of the CC-Initial related to Tesoro High School. The disturbance limits would extend onto the school property and would result in the temporary use of 0.8 ha (2.0 ac) and permanent acquisition of 0.4 ha (1.0 ac) of land, currently used for landscaping access road and parking, at this school. Therefore, there would be direct adverse impacts to Tesoro High School as a result of the CC-Initial.

The CC-Initial is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, the CC-Initial would not result in impacts on the ability of area school districts to provide services.

CC-Ultimate. The impacts of the CC-Ultimate related to Tesoro High School would be similar to the impacts for the CC-Initial, with an increase in the temporary impacts and the same permanent impacts as shown on Table 4.24-1. The impacts of the CC-Ultimate on Ole Hanson Elementary School would be the same as for the CC-Initial. The impacts of the CC-Ultimate related to San Clemente High School would be the same as for the CC-Initial as shown on Table 4.24-1.

Public Services Facilities

The CC Alternative would result in the temporary use and permanent acquisition of 0.4 ha (1.0 ac) of landscaping, parking and part of the building at San Clemente Post Office, as shown on Table 4.24-3. There are no other existing or planned public services facilities in the disturbance limits of the CC Alternative.

Flood Control Facilities

As shown in Table 5.11-2 in Appendix J, there are no flood control facilities within the disturbance limits of the CC Alternative. Therefore, this Alternative would not result in adverse impacts related to flood control.

Utilities

Utility Lines and Facilities

Table J-3 in Appendix J lists the utilities in and adjacent to the disturbance limits of the CC Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains and telephone, communication and cable television lines. As described in Section 4.24.3.2, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur during construction of the CC Alternative, would be adverse.

High Voltage Electrical Transmission Lines and Towers

Transmission towers/large poles associated with 138 kV and 220 kV high voltage transmission lines are within the disturbance limits of the CC Alternative. For the CC-Initial, a maximum of 12 towers, 17 poles and 14 pair poles need to be relocated or added. The maximum potential area of impacts for these relocations/additions would be 34.5 ha (84.4 ac), including 550.5 sq m (5925 sq ft) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. The area of potential impacts also includes a maximum of 2.5 ha (6.2 ac) of permanent impacts for utility access roads.

For the CC-Ultimate, a maximum of 12 towers, 17 poles and 16 pair poles would need to be relocated or added. The maximum potential area of impacts for these relocations/additions would be 33.4 ha (82 ac), including 599.8 sq m (6025 sq ft) of permanent impacts. The area of potential impacts also includes a maximum of 2.5 ha (6.2 ac) of permanent impacts for utility access roads.

These estimates for the CC Alternative are shown on Table 4.24-6. Should service from these lines be temporarily interrupted or the utilities damaged during construction, service outage could be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts associated with these towers/large poles and high voltage lines would be adverse.

Chiquita Water Reclamation Plant and Access Road

The only access to the Chiquita Water Reclamation Plant (CWRP) is from Chiquita Road and access needs to be provided 24-hours per day. The potential and permanent impacts to this road are summarized in Table 4.24-4. Part of this road would be removed with the CC Alternative. However, this Alternative includes a realignment of this access road to ensure continued access to the CWRP. The realigned road would be constructed prior to disruption of the existing road. This Alternative would not result in direct impacts to the CWRP. Therefore, no adverse impacts on the CWRP and access road would result under the CC Alternative.

Emergency Evacuation

CC-Initial

The beneficial effects of the CC-Initial that connects with I-5 in south San Clemente would be similar to the effects described in Section 4.24.3.3 for the FEC-W-Initial. This Alternative would have the beneficial effect of increasing the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason.

CC-Ultimate

The beneficial effects of the CC-Ultimate related to emergency evacuation would be the same as described for the CC-Initial, except that it would allow for faster evacuations because it has more travel lanes than the CC-Initial.

4.24.3.6 Central Corridor–Avenida La Pata Variation (CC-ALPV) Alternative

Public Services

Fire Protection and Emergency Medical Services

CC-ALPV-Initial. The types of beneficial and adverse impacts related to fire protection and emergency medical services of the CC-ALPV-Initial would be similar to the effects described in Section 4.24.3.3 for the FEC-W-Initial, except that there are no impacts related to MCB Camp Pendleton. Beneficial impacts include the enhanced ability to move fire protection resources from one area to another using the corridor and the fire break properties the road would provide in the event of a wildfire. Adverse impacts include an increased risk of wildfires in currently undeveloped areas and the potential of blocked access to the existing fire road grid in undeveloped areas, which could also interfere with emergency medical response during construction and operation of the CC-ALPV-Initial. The CC-ALPV-Initial crosses approximately 13.4 km (8.3 mi) of undeveloped land that is susceptible to wildfires.

There would be no physical impacts to existing fire stations related to this Alternative, as there are no fire stations within the disturbance limits for this Alternative.

CC-ALPV-Ultimate. The adverse impacts of the CC-ALPV-Ultimate related to fire protection and emergency medical services would be the same as for the CC-ALPV-Initial.

The CC-ALPV-Ultimate may provide a slightly more effective barrier to the spread of wildfire in currently undeveloped areas than the CC-ALPV-Initial because it would provide a wider paved surface barrier to wildfire than the CC-ALPV-Initial.

Law Enforcement

The CHP would be responsible for providing law enforcement service and patrol on the CC-ALPV Alternative, with the exception of the Avenida La Pata and Avenida Pico segments in the

City of San Clemente. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

The Sheriff's Department would be responsible for law enforcement service and patrol on the Avenida La Pata and Avenida Pico segments of the CC-ALPV Alternative in the City of San Clemente. This Alternative incorporates TSM technology improvements along the Avenida La Pata and Avenida Pico segments but no additional lanes or road widening would be constructed on these road segments. The TSM improvements may accommodate a slight increase in the number of vehicles on the Avenida La Pata and Avenida Pico segments but are not anticipated to generate a need for additional Sheriff's Department staff. Therefore, the CC-ALPV Alternative would not result in adverse impacts related to increased staffing needs of the Sheriff's Department.

The CC-ALPV Alternative is a transportation project and does not include the construction of residences or businesses that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, the CC-ALPV Alternative would not result in impacts on the ability of the Sheriff's Department to provide services to contracting communities, other than the potential impacts associated with service on the Avenida Pico segment of this Alternative in San Clemente described above.

There would be no physical impacts to any existing law enforcement facilities related to the CC-ALPV Alternative, as there are no law enforcement facilities in the disturbance limits.

Solid Waste Disposal Services

CC-ALPV-Initial. The CC-ALPV-Initial would not result in the generation of excess soil and rock material. Therefore, the CC-ALPV-Initial would not result in an adverse impact on landfill capacity associated with disposal of waste during construction.

The CC-ALPV-Initial crosses Prima Deshecha Sanitary Landfill on the same alignment as the CC-Initial. The temporary use and permanent right-of-way impacts of the CC-ALPV-Initial on the Landfill are summarized in Table 4.24-2. Existing Prima Deshecha Landfill operations facilities are within the disturbance limits of the CC-ALPV-Initial alignment and would need to be relocated. Relocation of these structures would be an adverse impact of this alternative related to the Landfill.

Therefore, the impacts of the CC-ALPV-Initial related to solid waste disposal services would be the same as for the CC-Initial. Under the CC-ALPV-Initial, the capacity of Zone 4 would be reduced by 2.6 mcm (3.5 mcy) and the life of the Landfill by 1.9 years as shown in Table 4.24-8. This is an adverse impact. The CC-ALPV-Initial also provides the same point of access to east side of Zone 4 for landfilling. The potential impacts related to Orange County's current strategic planning effort for waste disposal, titled RELOOC, would be adverse.

The operation of the CC-ALPV-Initial would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the CC-ALPV-Initial during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the CC-ALPV-Initial.

CC-ALPV-Ultimate. The impacts of the CC-ALPV-Ultimate related to solid waste disposal services would be nearly the same as the impacts for the CC-ALPV-Initial. The CC-ALPV-Ultimate would not result in the generation of excess soil and rock material. Existing Prima Deshecha Landfill operations facilities are within the disturbance limits of the CC-ALPV-Ultimate and would need to be relocated. Relocation of these structures would be an adverse impact of the CC-ALPV-Ultimate related to the Landfill. The temporary use and permanent right-of-way impacts of the CC-ALPV-Ultimate on the Landfill are summarized on Table 4.24-2. With the CC-ALPV-Ultimate, the same amount of landfilled material would be excavated and redeposited in the active area of the Landfill, the same amount of capacity at Zone 4 would be lost and the life of the landfill would be reduced by 1.9 years, as shown in Table 4.24-8.

Schools

CC-ALPV-Initial. The potential impacts of the CC-ALPV-Initial related to Tesoro High School would be the same as described in Section 4.24.3.5 for the CC-Initial, as shown in Table 4.24-1. An area currently used for landscaping, access road and parking at this school is in the disturbance limits of this alignment and would experience a temporary use of 0.8 ha (2.0 ac) and permanent acquisition of 0.4 ha (1.0 ac) under the CC-ALPV-Initial. Therefore, there would be an adverse direct impact related to this school as a result of the CC-ALPV-Initial.

The CC-ALPV-Initial is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, the CC-ALPV-Initial would not result in impacts on the ability of area school districts to provide services.

CC-ALPV-Ultimate. The impact of the CC-ALPV-Ultimate related to Tesoro High School would be similar to the CC-ALPV-Initial , as shown in Table 4.24-1, with an increase in temporary impacts and the same permanent impacts as the CC-ALPV-Initial.

Public Facilities

There are no existing or planned public services facilities in the disturbance limits of the CC-ALPV Alternative. Therefore, this Alternative would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

There are no flood control facilities within the disturbance limits for the CC-ALPV Alternative. Therefore, this Alternative would not result in adverse impacts related to flood control facilities.

Utilities

Utility Lines and Facilities

Table J-4 in Appendix J, lists the utilities in and adjacent to the disturbance limits of the CC-ALPV Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains and telephone, communication and cable television lines. As described in Section 4.24.3.2, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur, would be adverse.

High Voltage Electrical Transmission Lines and Towers

Transmission towers/large poles associated with 138 kV and 220 kV high voltage transmission lines are within the disturbance limits of the CC-ALPV Alternative. For the CC-ALPV-Initial, a maximum of 6 towers, 9 poles and 5 pair poles would need to be relocated or added. The maximum potential area of impacts for these relocations/additions would be 10.1 ha (24.3 ac), including 267.1 sq m (2875 sq ft) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. The area of potential impacts also includes a maximum of 0.8 ha (2.0 ac) of permanent impacts for utility access roads.

For the CC-ALPV-Ultimate, a maximum of 10 towers, 14 poles and 13 pair poles would need to be relocated or added. The maximum potential area of impacts for these relocations/additions would be 31.8 ha (78 ac), including 464.5 sq m (5000 sq ft) of permanent impacts for the actual footprint of the structures. The area of potential impacts also includes a maximum of 2.1 ha (5.2 ac) of permanent impacts for utility access roads.

These estimates for the CC-ALPV Alternative are shown on Table 4.24-6. Should service from these lines be temporarily interrupted or the utilities damaged during construction, service outage could be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts associated with these high voltage lines would be adverse.

Chiquita Water Reclamation Plant and Access Road

The only access to the CWRP is from Chiquita Road and access needs to be provided 24-hours per day. The potential temporary and permanent impacts to this road are summarized in Table 4.24-4. Part of this road would be removed with the CC-ALPV Alternative. However, the CC-ALPV Alternative includes a realignment of this access road to ensure continued access to the

CWRP. The realigned road would be constructed prior to disruption of the existing road. This Alternative would not result in direct impacts to the CRWP. Therefore, no adverse impacts on the CWRP and access road would result under the CC-ALPV Alternative.

Emergency Evacuation

CC-ALPV-Initial

The CC-ALPV Initial would have a beneficial effect related to emergency evacuation because it would provide a non-signalized alternate route between Avenida La Pata north of Avenida Pico and SR 241 to the north. This Alternative would increase the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason. However, it would not provide an alternate evacuation route between I-5 and the start of the corridor to the east of I-5 at Avenida La Pata.

CC-ALPV-Ultimate

The beneficial effects of the CC-ALPV-Ultimate related to emergency evacuation would be the same as described for the CC-ALPV-Initial, except that it would allow for faster evacuations because it has more travel lanes than the CC-ALPV-Initial.

4.24.3.7 Alignment 7 Corridor – Avenida La Pata Variation (A7C-ALPV) Alternative

Public Services

Fire Protection and Emergency Medical Services

A7C-ALPV-Initial. The types of beneficial and adverse impacts related to fire protection and emergency medical services under the A7C-ALPV-Initial are similar to those described in Section 4.24.3.3 for the FEC-W-Initial, except that there are no impacts to MCB Camp Pendleton. Beneficial impacts include the enhanced ability to move fire protection resources from one area to another using the corridor and the fire break properties the road would provide in the event of a wildfire. Adverse impacts include an increased risk of wildfires in currently undeveloped areas and the potential of blocked access to the existing fire road grid in undeveloped areas, which could also interfere with emergency medical response during construction and operation of the A7C-ALPV-Initial. The A7C-ALPV-Initial crosses approximately 13.0 km (8.1 mi) of undeveloped land that is susceptible to wildfires.

There would be no physical impacts to existing fire stations related to the A7C-ALPV-Initial, as there are no fire stations within the disturbance limits.

A7C-ALPV-Ultimate. The adverse impacts of the A7C-ALPV-Ultimate related to fire protection and emergency medical services would be the same as described for the A7C-ALPV-Initial.

The A7C-ALPV-Ultimate may provide a slightly more effective barrier to the spread of wildfire in currently undeveloped areas than the A7C-ALPV-Initial because it would provide a wider paved surface barrier to wildfire than the A7C-ALPV-Initial.

Law Enforcement

The CHP would be responsible for providing law enforcement service and patrol on the A7C-ALPV Alternative, with the exception of the Avenida La Pata and Avenida Pico segments in the City of San Clemente. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of theis Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

The Sheriff's Department would be responsible for law enforcement service and patrol on the Avenida La Pata and Avenida Pico segments of the A7C-ALPV Alternative in the City of San Clemente. This Alternative incorporates TSM technology improvements along the Avenida La Pata and Avenida Pico segments but no additional lanes or road widening would be constructed on these road segments. The TSM improvements may accommodate a slight increase in the number of vehicles on the Avenida La Pata and Avenida Pico segments but are not anticipated to generate a need for additional Sheriff's Department staff. Therefore, the A7C-ALPV Alternative would not result in adverse impacts related to increased staffing needs of the Sheriff's Department.

The A7C-ALPV Alternative is a transportation project and does not include the construction of residences or businesses that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, this Alternative would not result in impacts on the ability of the Sheriff's Department to provide services to contracting communities, other than the potential impacts associated with service on the Avenida Pico segment of this Alternative in San Clemente described above.

There would be no physical impacts to any existing law enforcement facilities related to the A7C-ALPV Alternative, as there are no law enforcement facilities in the disturbance limits.

Solid Waste Disposal Services

The A7C-ALPV Alternative would not result in the generation of excess soil and rock material. Therefore, this Alternative would not result in an adverse impact related to landfill capacity associated with the disposal of soil and rock during construction.

The A7C-ALPV Alternative intersects the Prima Deshecha Sanitary Landfill, as shown previously on Figure 4.24-4, crossing Zone 2 and the east parts of Zones 3 and 4 of the GDP 2001. Zone 4 is proposed for landfilling after Zone 1 reaches capacity in approximately 2019. Construction of the A7C-ALPV Alternative would reduce the capacity of Zone 4 by 6.8 mcm (9 mcy) and the life of the Landfill by 4.9 years, as shown in Table 4.24-8. Any reduction of landfill capacity and resulting reduction in effective life of the Landfill would be an adverse

impact. Therefore, the A7C-ALPV Alternative would result in an adverse impact related to the proposed capacity and life span of the Prima Deshecha Sanitary Landfill.

Following implementation of the A7C-ALPV Alternative, some landfilling may be possible in Zone 4 on the east side of the alignment of this Alternative. Access would be provided under the A7C-ALPV Alternative which would allow refuse truck access to Zone 4 on the east side of the Landfill property.

The A7C-ALPV Alternative also crosses Zone 3 which contains native vegetation including coastal sage scrub and mixed chaparral. This zone is proposed to be retained in its native state and implementation of the A7C-ALPV Alternative would result in an adverse impact on this proposed use. The NES analyzes the impacts of the A7C-ALPV Alternative on the biological resources of the native plant communities in Zone 3.

The A7C-ALPV Alternative crosses Zone 2 which consists of multi-use trails proposed for the landfill property. This Alternative would create a barrier across a trail in two locations and eliminate its connection with other trails in the area. This would be an adverse impact.

The A7C-ALPV Alternative would have the same potentially adverse impact related to Orange County's current strategic planning effort for waste disposal, titled RELOOC, as described in Section 4.24.3.5.

The operation of the A7C-ALPV Alternative would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the A7C-ALPV Alternative during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternatives, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the A7C-ALPV Alternative.

Schools

A7C-ALPV-Initial. The potential impacts of the A7C-ALPV-Initial related to Tesoro High School are shown in Table 4.24-1. The disturbance limits would extend onto school property and would result in the temporary use of 0.7 ha (1.8 ac) and permanent acquisition of 0.4 ha (1.0 ac) of land, currently used for landscaping, access road and parking at this school. Therefore, there would be adverse direct impacts related to this school as a result of the A7C-ALPV-Initial.

The A7C-ALPV-Initial is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, this Alternative would not result in impacts on the ability of the school district to provide services.

A7C-ALPV-Ultimate. The impacts of the A7C-ALPV-Ultimate related to schools would be similar to the impacts described above for the A7C-ALPV-Initial, with an increase in the temporary impacts and the same permanent impacts. As shown on Table 4.24-1, the A7C-ALPV-Ultimate would result in the temporary use of 1.3 ha (3.2 ac) of land currently used for landscaping, access road and parking at the school.

Public Services Facilities

There are no existing or planned public services facilities in the disturbance limits of the A7C-ALPV Alternative. Therefore, this Alternative would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

As shown in Table 5.20-1 in Appendix J, there are no flood control facilities within the disturbance limits for the A7C-ALPV Alternative. Therefore, this Alternative would not result in adverse impacts related to flood control facilities.

Utilities

Utility Lines and Facilities

Table J-5 in Appendix J lists the utilities in and adjacent to the disturbance limits of the A7C-ALPV Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains, telephone and cable television lines, and radio transmitters, antennae and appurtenant facilities. As described in Section 4.24.3.2, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur during construction of the A7C-ALPV Alternative, would be adverse.

High Voltage Electrical Transmission Lines and Towers

A large pole associated with a 138 kV high voltage transmission line is in the disturbance limits of the A7C-ALPV Alternative. For the A7C-ALPV-Initial, a maximum 4 poles would need to be relocated or added. The maximum potential area of impacts for these relocations/additions would be 1.1 ha (2.8 ac), including 9.3 sq m (100 sq ft) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. There would be no permanent impacts for utility access roads.

For the A7C-ALPV-Ultimate, a maximum 4 poles would need to be relocated or added. The maximum potential area of impacts for these relocations/additions would be 1.7 ha (4.1 ac), including 9.3 sq m (100 sq ft) of permanent impacts for the actual footprint of the structures. There would be no permanent impacts for utility access roads.

These estimates for the A7C-ALPV Alternative are shown on Table 4.24-6. Should service from this line be temporarily interrupted or the utilities damaged during construction, service outage would be experienced over a wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts associated with this high voltage line would be adverse.

Chiquita Water Reclamation Plant and Access Road

The A7C-ALPV Alternative would result in the temporary use and permanent acquisition of land at the CWRP and land associated with the CWRP access road. The potential temporary and permanent impacts to the CWRP and CWRP access road are shown on Table 4.24-4. Part of this road would be removed with the A7C-ALPV Alternative. However, this Alternative includes a realignment of this access road to ensure continued access to the CWRP. The realigned road would be constructed prior to disruption of the existing road. Therefore, no adverse impacts on the CWRP access road would result under the A7C-ALPV Alternative. There would be an adverse impact on facilities on the northeast part of the CWRP under this Alternative because there are existing treatment facilities in the disturbance limits for this Alternative.

Emergency Evacuation

A7C-ALPV-Initial

The A7C-ALPV Initial would have a beneficial effect related to emergency evacuation because it would provide a non-signalized alternate route between Avenida La Pata north of Avenida Pico and SR 241 to the north. This Alternative would increase the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason. However, it would not provide an alternate evacuation route between I-5 and the start of the corridor to the east of I-5 at Avenida La Pata.

A7C-ALPV-Ultimate

The beneficial effects of the A7C-ALPV-Ultimate related to emergency evacuation would be greater than for the A7C-ALPV-Initial because it would allow for faster evacuations because it has more travel lanes than the A7C-ALPV-Initial.

4.24.3.8 Alignment 7 Corridor -Far East Crossover-Modified (A7C-FEC-M) Alternative

Public Services

Fire Protection and Emergency Medical Services

A7C-FEC-M-Initial. The types of beneficial and adverse impacts related to fire protection and emergency medical services under the A7C-FEC-M-Initial are the same as described in Section 4.25.3.3 for the FEC-W-Initial. Beneficial impacts include the enhanced ability to move fire protection resources from one area to another using the corridor and the fire break properties the road would provide in the event of a wildfire. Adverse impacts include an increased risk of

wildfires in currently undeveloped areas and the potential of blocked access to the existing fire road grid in undeveloped areas, which could also interfere with emergency medical response during construction and operation of the A7C-FEC-M-Initial. The A7C-FEC-M-Initial crosses approximately 21.9 km (13.6 mi) of undeveloped land that is susceptible to wildfires.

There would be no physical impacts to existing fire stations related to the A7C-FEC-M-Initial, as there are no fire stations within the disturbance limits.

A7C-FEC-M-Ultimate. The adverse impacts of the A7C-FEC-M-Ultimate related to fire protection and emergency medical services would be the same as for the A7C-FEC-M-Initial.

The A7C-FEC-M-Ultimate may provide a slightly more effective barrier to the spread of wildfire in currently undeveloped areas than the A7C-FEC-M-Initial because it would provide a wider paved surface barrier to wildfire than the A7C-FEC-M-Initial. This benefit would also apply to land within MCB Camp Pendleton.

Law Enforcement

The CHP would be responsible for providing primary law enforcement services on the A7C-FEC-M Alternatives. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

MCB Camp Pendleton is currently under federal jurisdiction. Should the A7C-FEC-M Alternative be selected for implementation, the Department of the Navy (DON) would be requested to grant an easement to the TCA for right-of-way through MCB Camp Pendleton. If such an easement is granted to the TCA, concurrent law enforcement jurisdiction would be transferred to the State of California for the segment of the Alternative that is approved for construction within MCB Camp Pendleton. Concurrent law enforcement jurisdiction on the corridor segment that crosses Camp Pendleton would allow the CHP to provide law enforcement service on this segment. Non-federal law enforcement jurisdiction on the corridor segment through MCB Camp Pendleton is necessary to ensure the provision of adequate law enforcement service on this segment. It is anticipated that the MCB Camp Pendleton Provost Marshall patrol staff would provide back-up law enforcement service on the segment though Camp Pendleton through mutual aid agreements with the CHP. It is not anticipated that Provost Marshall patrol staff would be added to respond to additional mutual aid calls that may be generated with the A7C-FEC-M Alternative. Therefore, this Alternative would not result in adverse impacts related to MCB Camp Pendleton law enforcement services.

The Sheriff's Department would not be responsible for law enforcement service and patrol on the A7C-FEC-M Alternative. This Alternative is a transportation project and does not include the construction of residences or businesses that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, the A7C-FEC-M Alternative would not result in impacts on the ability of the Sheriff's Department to provide services to contracting communities.

There would be no physical impacts to any existing law enforcement facilities related to the A7C-FEC-M Alternative, as there are no law enforcement facilities in the disturbance limits.

Solid Waste Disposal Services

The A7C-FEC-M Alternative would not result in the generation of excess soil and rock material. Therefore, this Alternative would not result in an adverse impact on landfill capacity associated with disposal of excess soil and rock during construction.

The operation of the A7C-FEC-M Alternative would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the A7C-FEC-M Alternative during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the A7C-FEC-M Alternative.

Schools

There are no school facilities or school property within the disturbance limits of the A7C-FEC-M Alternative. Therefore, there would be no adverse direct impacts related to schools as a result of the A7C-FEC-M Alternative.

The A7C-FEC-M Alternative is a transportation project and does not include the construction of residences or other facilities that would result in an increase in the number of students. Therefore, this Alternative would not result in impacts on the ability of area school districts to provide services.

Public Services Facilities

There are no existing or planned public services facilities in the disturbance limits of the A7C-FEC-M Alternative. Therefore, this Alternative would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

As shown in Table 5.21-1 in Appendix J, there are no flood control facilities within the disturbance limits of the A7C-FEC-M Alternative. Therefore, this Alternative would not result in adverse impacts related to flood control facilities.

Utilities

Utility Lines and Facilities

A7C-FEC-M-Initial. Table 5.21-1 in Appendix J, lists the utilities in and adjacent to the disturbance limits of the A7C-FEC-M Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains and telephone, communication and cable television lines. As described in Section 4.24.2.3, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur during construction of the A7C-FEC-M Alternative, would be adverse.

The A7C-FEC-M Alternative would require the temporary use and permanent acquisition of 0.5 ha (1.3 ac) of land at the Cristianitos substation as shown in Table 4.24-5. The Cristianitos substation facility will not be directly impacted. However, it is possible that SDG&E could expand or modify the Cristianitos substation in the future based on their facility plans in this part of their network. The A7C-FEC-M Alternative would directly impact part of the area east of the substation and could preclude future development in this area.

The A7C-FEC-M Alternative would require the temporary use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the Talega substation as shown in Table 4.24-5. The Talega substation facility itself will not be directly impacted but the access road will be realigned as part of the project. This impact to the Talega substation would be adverse.

High Voltage Electrical Transmission Lines and Towers/Large Poles

Towers/large poles associated with 138 kV, 220 kV and 230 kV transmission lines are within the disturbance limits of the A7C-FEC-M Alternative. For the A7C-FEC-M Alternative, a maximum of 11 towers, 27 poles and 2 pair poles would need to be relocated or added. The maximum area of impacts for these relocations/additions would be 19.3 ha (47.9 ac), including 480.8 sq m (5175 sq ft) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. The area of potential impacts also includes a maximum of 3.8 ha (9.4 ac) of permanent impacts for utility access roads. These estimates for the A7C-FEC-M Alternative are shown on Table 4.24-6. Should service from these lines be temporarily interrupted or the utilities damaged during construction, service outage would be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential impacts associated with these high voltage lines would be adverse.

Percolation Ponds and Wells

One of the twelve percolation ponds on MCB Camp Pendleton, south of San Onofre Creek is within the disturbance limits of the A7C-FEC-M Alternative for an extended detention basin (EDB). This Alternative would result in the temporary use of the entire percolation pond of 0.7 ha (1.7 ac) and permanent acquisition of approximately 0.4 ha (1.0 ac) of the pond. This would

be an adverse impact of this Alternative related to this percolation pond. Refer to Table 4.24-7 for a summary of these impacts.

There are no irrigation or potable water wells in the disturbance limits of the A7C-FEC-M Alternative. Therefore, there would be no potential adverse impacts to wells related to this Alternative.

Emergency Evacuation

A7C-FEC-M-Initial. The beneficial effects of the A7C-FEC-M-Initial related to emergency evacuation would be essentially the same as described in Section 4.24.3.3 for the FEC-W-Initial. This Alternative would have the positive effect of increasing the speed at which evacuations could be completed and would provide an alternate route should I-5 become impassable for some reason.

A7C-FEC-M-Ultimate. The beneficial effects of the A7C-FEC-M-Ultimate related to emergency evacuation would be the same as described for the A7C-FEC-M-Initial, except that the A7C-FEC-M-Ultimate would allow for faster evacuations because it has more travel lanes than the A7C-FEC-M-Initial.

4.24.3.9 Arterial Improvements Only (AIO) Alternative

Public Services

Fire Protection and Emergency Medical Services

There would be no physical impacts to any existing fire stations related to the AIO Alternative, as there are no fire stations in the disturbance limits. There would be a slightly increased risk of wildfire associated with the AIO Alternative on the alignment along the parts of Antonio Parkway and Avenida La Pata that cross undeveloped areas subject to wildfires. The rest of the alignment either crosses existing urban areas that would not be subject to wildfires, or incorporates TSM improvements only and would not require the construction of additional lanes or road widening that might increase the wildfire risk. The impact related to a minimal increased risk of wildfires would be adverse.

The potential exists for access to the existing fire road grid in undeveloped areas to be blocked during construction or by the completed road which would be a potential adverse impact of the AIO Alternative. The potential for non-fire-related medical emergencies would increase with the presence of construction workers and heavy machinery during construction of the project and with the presence of vehicles during operation. In the case of such emergencies, limited or blocked access, as previously described, would also be an adverse impact of this Alternative.

Law Enforcement

For the AIO Alternative, the CHP would be responsible for providing law enforcement service and patrol on segments that are outside incorporated City limits and outside the limits of the Las

Flores and Ladera Ranch communities that contract for service with the Sheriff's Department. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

The Sheriff's Department would be responsible for law enforcement service on the segments of the AIO Alternative that are within the unincorporated communities of Las Flores and Ladera Ranch and within incorporated City limits. The AIO Alternative incorporates TSM technology improvements along the Ortega Highway, Camino Las Ramblas and Avenida Pico segments, but no additional lanes or road widening would be constructed on these segments. The CHP (Ortega Highway) and the Sheriff's Department (Camino Las Ramblas and Avenida Pico) would be responsible for law enforcement service on these segments. The TSM improvements may accommodate a slight increase in the number of vehicles on these segments but are not anticipated to generate a need for additional law enforcement staff. However, additional Sheriff's Department staff may be required to serve the additional traffic flows that would be accommodated along the Antonio/La Pata segment of the AIO Alternative within its jurisdiction. This would be an adverse impact of this Alternative.

The AIO Alternative is a transportation project and does not include the construction of residences or business facilities that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, this Alternative would not result in increased call volumes that could adversely impact the ability of the Sheriff's Department to provide services to contracting communities.

There would be no physical impacts to any existing law enforcement facilities related to the AIO Alternative, as there are no law enforcement facilities in the disturbance limits.

During construction of the AIO Alternative, various streets may be temporarily closed and traffic may be temporarily detoured. These temporary detours may cause some delays for law enforcement services because law enforcement vehicles would be required to travel longer distances on surface streets and response times could increase. This could potentially result in a temporary adverse impact related to law enforcement response times.

Solid Waste Disposal Services

The AIO Alternative would have an imbalance in earthwork, with 1.1 mcm (1.4 mcy) more cut material than fill. However, as described earlier in this section, balance of this difference between cut and fill will be achieved within the established disturbance limits by making slight modifications to road grades and adjusting the top and toe location of graded slopes. Therefore, this Alternative would not result in adverse impacts on landfill capacity associated with disposal of excess soil and rock during construction.

The AIO Alternative crosses the Prima Deshecha Sanitary Landfill in Zone 5 of the GDP 2001. Zone 5 encompasses the area of disturbance for the future construction of Avenida La Pata across the Landfill, as shown on Figure 4.24-4. The boundaries of Zone 5 were defined in the

GDP 2001 based on a conceptual alignment design for Avenida La Pata and the assumption that Avenida La Pata would be constructed prior to landfilling in Zone 4. Zone 4 is proposed for landfilling after Zone 1 reaches capacity in approximately 2019. Should the Zone 4 landfill be constructed first and based on the final design for Avenida La Pata, the area of disturbance for Avenida La Pata would be assumed to be modified to avoid the landfilled area. The AIO Alternative, as it crosses the Landfill, includes one additional lane in each direction over the number of lanes at build-out of the MPAH. The temporary use and permanent right-of-way impacts of the AIO Alternative on the Landfill are summarized on Table 4.24-2. If the disturbance limits for the AIO Alternative are not accommodated within the limits of Zone 5, the AIO Alternative would cross a landfilled area and would require the excavation and redepositing of 0.2 mcm (0.3 mcy) excavated landfilled material, would reduce the capacity of Zone 4 by 0.2 mcm (0.3 mcy) and would reduce the lifespan of the landfill by 0.1 year. These impacts are shown on Table 4.24-8. The preliminary design of La Pata Avenue does not show access from the west side (Zone 1) to the east side (Zones 3 and 4). This limitation in access under this Alternative would be an adverse impact.

The operation of the AIO Alternative would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the AIO Alternative during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the AIO Alternative.

Schools

Las Flores Elementary School, in the Capistrano Unified School District, is adjacent to Oso Parkway. The school property is within the temporary disturbance limits of the AIO Alternative and this Alternative would result in the permanent take of 2.1 ha (5.2 ac) and temporary use of 2.5 ha (6.2 ac) of school property, most of which is open playing fields, as shown in Table 4.24-1. This direct impact would be adverse because there is no property on site or in proximity to the school where these outdoor play uses could be relocated.

The proposed San Juan Hills High School is within the disturbance limits of the AIO Alternative. The AIO Alternative would result in the temporary use and permanent acquisition of 0.4 ha (1.0 ac) of this property. This would be an adverse impact of the AIO Alternative.

Public Services Facilities

There are no existing or planned public services facilities in the disturbance limits of the AIO Alternative. Therefore, this Alternative would not result in impacts on existing or planned public services facilities.

Flood Control Facilities

There are no flood control facilities within the disturbance limits of the AIO Alternative. Therefore, this Alternative would not result in adverse impacts on flood control facilities.

Utilities

Utility Lines and Facilities

Table J-7 in Appendix J lists the utilities in and adjacent to the disturbance limits of the AIO Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains and telephone and cable television lines and electrical substations. As described in Section 4.24.3.2, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur, would be adverse.

The SDG&E substation on Antonio Parkway is within the disturbance limits of the AIO Alternative as shown in Table 4.24-5. Construction would temporarily disturb 0.5 ha (1.3 ac) at this substation. Permanent right-of-way would require acquisition of 0.07 ha (0.2 ac) at this substation. This would be adverse.

High Voltage Electrical Transmission Lines and Towers

Transmission towers/large poles associated with 138 kV and 220 kV high voltage transmission lines are within the disturbance limits of the AIO Alternative. For the AIO Alternative, a maximum of 18 towers, 10 poles and 12 pair poles would need to be relocated or added. The maximum area of potential impacts for these relocations/additions would be 36.6 ha (90.4 ac), including 747.9 sq m 8050 sq ft) of permanent impacts for the actual footprint of the structures. Temporary impacts would occur as a result of construction activities associated with relocation of these utility facilities and include laydown areas and pull locations. The area of potential impacts also includes a maximum of 2.1 ha (5.2 ac) of permanent impacts for utility access roads. These estimates for the AIO Alternative are shown on Table 4.24-6. Should service from these lines be temporarily interrupted or the utilities damaged during construction, service outage would be experienced over a far wider area than with impacts to smaller lines, and numerous people would be affected. Therefore, the potential adverse impacts associated with these high voltage lines would be more severe than potential impacts to smaller utilities that serve fewer people.

Chiquita Water Treatment Plant and Access Road

The AIO Alternative would result in temporary disturbance of 0.2 ha (0.6 ac) and permanent acquisition of 0.1 ha (0.2 ac) of this road as shown on Table 4.24-4. This road would be relocated without disturbance to the CWRP operations. The AIO would not result in impacts on the CWRP facilities. Therefore, the AIO Alternative would not result in adverse impacts to the CWRP access road.

Emergency Evacuation

The AIO Alternative assumes build out of the MPAH which includes the extension of Avenida La Pata south to Avenida Pico in San Clemente. The AIO Alternative would expand the number of lanes in the MPAH for Antonio Parkway/Avenida La Pata from six to eight lanes between Oso Parkway and San Juan Creek Road and from four to six lanes between San Juan Creek Road and Avenida Pico. The AIO Alternative would have a slightly positive effect related to emergency evacuation because the additional lanes would increase the speed at which evacuations could be completed. However, this Alternative would not provide an alternate evacuation route to I-5 from San Clemente north.

4.24.3.10 I-5 Widening (I-5) Alternative

Public Services

Fire Protection and Emergency Medical Services

There would be no physical impacts to any existing fire stations related to the I-5 Alternative, as there are no fire stations in the disturbance limits. There would not be an increased risk of wildfire associated with this Alternative as the alignment crosses an existing urban area.

During construction of this Alternative, various I-5 ramps may be temporarily closed. These temporary closures may cause some delays for fire and emergency medical services because the next open ramp nearest to the closed ramp would need to be used for access during closures. This impact would be adverse.

The I-5 Alternative also includes the realignment of part of El Camino Real in San Juan Capistrano and parts of streets adjacent to I-5 in San Juan Capistrano and other locations along the alignment, requiring detours or reduced lane availability during construction. In these cases, fire and emergency medical vehicles would be required to travel longer distances on surface streets and response times could increase. This could potentially result in temporary adverse impacts related to fire and emergency services response times.

Law Enforcement

The CHP would be responsible for providing law enforcement service and patrol on the I-5 Alternative. Although the CHP has indicated that additional officers would be required to service this Alternative (Correspondence Lt. Steve Deck, June 8, 2001), this is not expected to be an adverse impact of this Alternative because the CHP would address staffing needs in its annual budget and staff allocation process.

The Sheriff's Department would not be responsible for law enforcement service and patrol on the I-5 Alternative. Therefore, this Alternative would not result in impacts to services provided by the Sheriff's Department that are directly related to the proposed road.

The I-5 Alternative is a transportation project and does not include the construction of residences or business facilities that could increase the number of persons in a community that might use the Sheriff's Department services. Therefore, this Alternative would not result in increased call volumes that could adversely impact the ability of the Sheriff's Department to provide services to contracting communities.

As shown in Table 4.24-9, the Sheriff's Department Lake Forest Community Office is in a building that is partially within the disturbance limits of the I-5 Alternative. Part of this building that includes the Community Office would be removed during construction. The removal of this part of the Sheriff's facility would be an adverse impact of this Alternative.

During construction of this Alternative, various I-5 ramps may be temporarily closed. These temporary closures may cause some delays for law enforcement services because the next open ramp nearest to the closed ramp would need to be used for access during closures. The I-5 Alternative also includes the realignment of part of El Camino Real in San Juan Capistrano and parts of streets adjacent to I-5 in San Juan Capistrano and other locations along the alignment, requiring detours or reduced lane availability during construction. In these cases, law enforcement vehicles would be required to travel longer distances on surface streets and response times could increase for both the CHP and the Sheriff's Department. This could potentially result in temporary adverse impacts related to law enforcement response times.

Solid Waste Disposal Services

The I-5 Alternative may result in the generation of up to 4.3 mcm (5.6 mcy) of excess soil and rock material. This excess material is assumed to be disposed of off site. Options for the disposal of this excess fill would be the same as described earlier for the CC-Ultimate Alternative. If the total excess material generated during construction of this Alternative were deposited as waste in area landfills, this would result in a substantial, temporary increase in waste disposal at the affected landfills. Because landfill capacity is finite, deposition of the total excess fill in area landfills would constitute an amount of material and would be considered a substantial adverse impact of the I-5 Alternative related to landfill capacity.

The construction contractor could use any open landfill for disposal of excess material and/or waste associated with the project. It is anticipated that the contractor would likely use Prima Deshecha Sanitary Landfill because it is the closest landfill to the project area. However, the contractor may elect to transport excess materials to other landfills. Excess material would not be disposed of at MCB Camp Pendleton landfills, unless such disposal is approved in advance by agreement of the Environmental Security Department's Solid Waste Branch.

The operation of the I-5 Alternative would not result in adverse impacts to solid waste disposal or generation in Orange or San Diego Counties. Refuse collected along the I-5 Alternative during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The first choice for disposal of landscape trimming from routine maintenance would be to deposit it, as prudent and feasible, in existing green waste composting facilities. The second choice for disposal would be into a landfill. The amount of refuse and landscape trimmings collected along this Alternative would represent a very minor part of the planned

capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the Alternative, based on the Prima Deshecha GDP 2001. Therefore, no adverse impacts to solid waste facilities would result from operation of the I-5 Alternative.

Schools

The schools shown on Table 4.24-9 are in the disturbance limits of the I-5 Alternative and would be impacted by this Alternative. The table shows the school, school district and the temporary and permanent impacts to the school facilities including the number of hectares (acres) of impact. Impacts range from loss of buildings to loss of sports fields and facilities to permanent relocation of portable buildings. All the impacts would be considered adverse, with the exception of impacts to Ole Hanson Elementary School, which incurs impacts on a small area of a landscaped hillside where no active school uses occur.

Direct impacts to these sports fields and sports facilities would be adverse because there is no property on site or in proximity to the schools where these uses could be relocated. In addition, the SVUSD has indicated that the Mission Viejo High School athletic complex is the home stadium for both Laguna Hills and Mission Viejo High Schools and is used for home football and baseball games, and track and field events. The SVUSD has further stated that any interference with this use or reduction in the size of the facility would cause a major hardship for the two schools. (Source: SVUSD letter dated June 19, 2001).

Public Services Facilities

As shown on Table 4.24-9, two City Halls, San Clemente Post Office and Buccheim Fields are within the disturbance limits of the I-5 Alternative and would be impacted by this Alternative. These impacts, which include temporary use during construction, permanent acquisition from loss of parking and part of the sports field, and full take of the Post Office, would be adverse.

Flood Control Facilities

There are no flood control facilities within the disturbance limits of the I-5 Alternative. Therefore, this Alternative would not result in adverse impacts on flood control facilities.

Utilities

Utility Lines and Facilities

Table J-8 in Appendix J lists the utilities in and adjacent to the disturbance limits of the I-5 Alternative. These are electricity, natural gas, fuel transport, domestic water, irrigation water, reclaimed water and wastewater, storm drains, telephone and cable television lines, and electrical substations, sewer pump stations and water pressure reducing stations. As described in Section 4.24.3.2, during construction there is the potential for utility service to be temporarily interrupted or for the utilities to be damaged. These impacts, should they occur during construction of the I-5 Alternative, would be adverse.

There is no tower or large pole relocation required for the I-5 Alternative.

The I-5 Alternative would result in permanent and temporary impacts at the SDG&E Crown Valley and Antonio Parkway substations as shown on Table 4.24-5.

Percolation Ponds

The MCB Camp Pendleton percolation ponds at San Onofre Creek and southeast of San Mateo Creek are not within the I-5 Alternative disturbance limits. Therefore, there would be no potential adverse impacts to these ponds as a result of this Alternative.

Emergency Evacuation

The I-5 Alternative would have a slightly positive effect related to emergency evacuation because the additional lanes on I-5 would increase the speed at which evacuations could be completed. However, this alternative would not provide an alternate evacuation route to I-5 from San Clemente north.

4.24.3.11 No Action Alternatives

Public Services

The No Action Alternatives would not result in adverse direct or indirect impacts to public services because there would be no construction associated with these Alternatives that could impact public services. The No Action Alternatives would preclude the beneficial aspects of the build Alternatives for fire protection services including access to currently inaccessible areas and the provision of a firebreak with a new road. These Alternatives would not provide the potential benefit of improved fire, emergency medical and law enforcement response times that the I-5 Alternative could provide due to improved traffic flows on the arterial road system.

Utilities

The No Action Alternatives would not result in adverse direct or indirect impacts to utilities because they include no construction that could impact utilities.

Emergency Evacuation

The No Action Alternatives fail to increase the speed at which evacuations could be completed because these No Action Alternatives would not provide an alternate evacuation route should I-5 become impassable for some reason. The No Action Alternatives fail to meet the project objective of providing an alternate access route for emergency evacuation and emergency service providers.

4.24.3.12 Summary of Impacts

As described in the previous sections, all the SOCTIIP build Alternatives, with the exception of the I-5 Alternative, would result increased risk of wildfires, potential blockage of access to the fire road grid and reduced access for medical emergencies during construction. The CC and I-5 Alternatives would result in increased fire protection, law enforcement and emergency response times.

The FEC-M, FEC-W and A7C-FEC-M Alternatives would result in the need for non-federal law enforcement on the corridor through MCB Camp Pendleton.

The CC, CC-ALPV, A7C-ALPV and AIO Alternatives would result in reduced capacity and lifespan of Prima Deshecha Landfill. The CC, CC-ALPV, A7C-ALPV and AIO would result in the potential for blocked access within the Landfill during construction. Additionally the AIO Alternative would result in potential blocked access within the Landfill following construction. The CC-Ultimate and the I-5 Alternatives would result in the generation of excess soil and rock material. The CC, CC-ALPV and AIO Alternatives would result in the relocation of part of the Prima Deshecha Landfill operation facilities.

All the SOCTIIP build Alternatives would result in the temporary loss of use and permanent acquisition of public services facilities and utilities properties. The CC-ALPV would result in the temporary loss only of part of one school property. The FEC-M, FEC-W and A7C-FEC-M Alternatives would impact part of a percolation basin on MCB Camp Pendleton. The FEC-M, FEC-W Alternatives would impact two electric substation properties, and the A7C-FEC-M would impact part of one substation property.

The CC, A7C-ALPV, AIO and I-5 Alternatives would impact a greater number of public services facilities and utilities properties than the FEC-M, FEC-W, A7C-FEC-M and CC-ALPV Alternatives. The AIO Alternative would result in impacts to part of one school property, part of proposed school property, one water treatment access road and one electric substation property. The A7C-ALPV Alternative would result in the temporary loss and permanent acquisition of part of one school property and part one water treatment access road. Additionally, the A7C-ALPV-Ultimate would result in the acquisition of part of the Chiquita Water Treatment Plant property. The CC Alternative would result in permanent and temporary impacts to parts of three school properties, one public service facility property and one water treatment access road. The I-5 Alternative would result in temporary and permanent impacts to parts of six school properties, three public services facilities properties, two electric substation properties and one sports field.

All the SOCTIIP build Alternatives, except the I-5 Alternative, would result in the relocation/addition of high voltage electrical towers and/or large utility poles. All the SOCTIIP build Alternatives would result in the short term potential for damage or interruption of utilities services during construction.

4.24.4 MITIGATION MEASURES RELATED TO PUBLIC SERVICES AND UTILITIES

4.24.4.1 Mitigation Measures Originally Identified in EIR No. 3

Mitigation measures were provided in the MMP for EIR No. 3 for the Foothill Transportation Corridor – Oso Parkway to Interstate 5, to minimize the impacts to public services and utilities identified for the alignments analyzed in that EIR. All the mitigation measures in the MMP for EIR No. 3 were reviewed and have been incorporated, as applicable, in the mitigation measures for the SOCTIIP Alternatives. Some of the measures from the MMP in EIR No. 3 are proposed to be deleted because they no longer apply to the SOCTIIP Alternatives. Table 4.24-10 lists the mitigation measures from the MMP in EIR No. 3 and provides the proposed status for each measure. If the measure has been incorporated into a SOCTIIP mitigation measure, the new mitigation measure number is provided. If a measure is proposed to be deleted, the reason for deleting the measure is provided.

4.24.4.2 Mitigation Measures for the SOCTIIP Build Alternatives

The following mitigation measures were developed to avoid or minimize as much as possible the impacts of the SOCTIIP build Alternatives related to public services and utilities. Mitigation measures originally identified in the MMP for EIR No. 3 have been incorporated, as appropriate, in these mitigation measures. Mitigation measures not originally identified in EIR No. 3 have been added to address additional impacts identified for the SOCTIIP Alternatives. Table 4.24-11 summarizes the applicability of each mitigation measure to each of the SOCTIIP Alternatives.

The TCA or other agencies implementing a SOCTIIP Alternative (because the TCA would not be the implementing agency for the non-corridor Alternatives) will comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property within the right-of-way necessary for the proposed project. The provisions of this Act, as well as mitigation measures related to temporary use and permanent acquisition of property, are addressed in detail in Section 4.4 (Affected Setting, Impacts and Mitigation Measures Related to Socioeconomics and Environmental Justice).

<u>Mitigation Measures for Public Services</u>

Mitigation to Avoid or Reduce the Temporary Use and/or Permanent Acquisition of Public Services and Utilities Property

As described previously, the SOCTIIP build Alternatives would result in the temporary use and/or permanent acquisition of property currently used by public services and utilities. Mitigation measure PS-1, below, is intended to ensure that these impacts are minimized or avoided through design refinement during the final design of the selected alternative. In the event that the temporary use or permanent acquisition of this property cannot be avoided, mitigation measures described later in this Section would apply to build Alternatives as noted in Table 4.24-11 to address those temporary and/or permanent impacts consistent with the requirements of the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970.

Measure PS-1: Avoidance of the Temporary Use and/or Permanent Acquisition of Public Services and Utilities Property. During final design, the TCA or the implementing agency/agencies will refine the design to the extent feasible based on engineering judgment and design standards to avoid or minimize the temporary use during construction and the permanent acquisition of land currently occupied by public services and utilities. In the event that the temporary use or permanent acquisition of this property cannot be avoided through design refinements, other mitigation measures identified for the compensation of temporary and permanent use of public services and utilities property will apply to the build Alternatives.

Mitigation for Fire Protection, Law Enforcement and Emergency Medical Services

Measure PS-2: Fire Protection. During construction, in areas subject to wildland fires as determined by the OCFA, or the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, the contractor will be required to install signs around construction sites warning of high fire risk and of area closings during the high fire season as declared by OCFA or the MCB Camp Pendleton Fire Department.

Measure PS-3: Fire Protection. During operation of a build alternative, Caltrans (for the corridor, Ortega Highway and I-5) and/or the local jurisdiction (for local arterials), as appropriate, will install signs along the new or improved road segments in areas subject to wildland fires as determined by the OCFA, or the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, warning of high fire risk and of area closings during the high fire season declared by OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-4: Fire Protection. Emergency call boxes will be installed along the road in undeveloped areas of high and extreme fire hazard, consistent with existing OCFA, Orange County Transportation Authority, Caltrans, TCA and/or local jurisdiction, as appropriate, policies on emergency call boxes.

Measure PS-5: Fire Protection. During construction of a build alternative, the contractor will be required to maintain access to the existing fire road grid for the OCFA, and the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton.

Measure PS-6: Fire Protection. During final design for a build alternative, the long term preservation/provision of access to the existing fire road grid for the OCFA, and the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, will be incorporated in the facility design, in consultation with the OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-7: Fire Protection. During construction of a build alternative, the contractor will implement fuel modification techniques as required by the OCFA, and the MCB Camp Pendleton Fire Department in areas on MCB Camp Pendleton, in areas of fire hazard as determined by the OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-8: Fire, Emergency Medical and Law Enforcement. During final design, the TCA, Caltrans and/or the City of San Clemente, as appropriate, will coordinate the addition of

OPTICON or other traffic pre-emption devices as used in the City of San Clemente with the City's traffic engineer. These devices will be provided at impacted intersections, as identified in the Traffic Technical Report, to reduce impacts to fire, medical emergency and law enforcement response times.

Mitigation Measure PS-9: Fire, Emergency Medical and Law Enforcement. During construction the TCA or the implementing agency/agencies will require the contractor to coordinate all temporary ramp closures and detour plans with fire, emergency medical and law enforcement providers to minimize temporary delays in response times.

Measure PS-10: Law Enforcement. Prior to operation of any build alternative which crosses MCB Camp Pendleton, the State of California shall solicit a transfer of concurrent legal (law enforcement) jurisdiction from the federal government to the State for any part of an alternative that crosses MCB Camp Pendleton as provided in Section 2851 of the Fiscal Year 1999 National Defense Authorization Act (H.R. 3616).

Mitigation for Solid Waste

Measure PS-11: Solid Waste. Prior to the final design of a build alternative that crosses Prima Deshecha Sanitary Landfill, the TCA (Corridor Alternatives) or implementing agency/agencies (AIO Alternative) shall consult with site engineers from the Landfill to identify and incorporate design elements that minimize impacts related to capacity and Landfill life span. Construction across or excavation in any areas previously used for landfilling will be carried out consistent with all pertinent local, state and federal regulations regarding construction and disturbance in areas previously used for landfilling.

In addition to mitigation measure PS-11, refer to mitigation measures HM-11 in Section 4.17 (Hazardous Materials and Hazardous Waste Sites) and SE-1 in Section 4.4 (Socioeconomics and Environmental Justice), both of which also address avoidance or minimization of impacts related to Prima Deshecha Sanitary Landfill.

Measure PS-12: Solid Waste. During final design of a build alternative which crosses Prima Deshecha Sanitary Landfill, the TCA (Corridor Alternatives) or implementing agency/agencies (AIO Alternative) will incorporate access routes on the Landfill site to accommodate travel within this site for waste disposal and other vehicles. Specifically, the access routes will allow vehicles to access Zone 4 from the existing La Pata Avenue access road and to access all areas in Zone 4. At no time, including during construction, will access to or within Prima Deshecha Sanitary Landfill be restricted such that landfilling operations are adversely affected. The current designs for the corridor Alternatives include this access. The current designs for the AIO Alternative would require modification by the implementing agency/agencies to include this access.

Measure PS-13: Solid Waste. Prior to construction of a build alternative which will generate excess fill, the contractor will be required to offer fill for use in other development projects or to area landfills as daily cover. Landfilling of excess soil and rock material will be considered the option of last resort.

PS-13A: Solid Waste. Excess fill material from construction will not be disposed of at MCB Camp Pendleton landfills, unless such disposal is approved in advance though mutual agreement with the Environmental Security Department's Solid Waste Branch. If Base agreement for such disposal is granted, the contractor shall be responsible for hauling the materials to the Base landfill(s) and for complying with all Base regulations regarding the transport and disposal of that material on the Base.

Mitigation for Schools

Short term construction impacts and long term operational impacts on schools potentially include air, noise and traffic related impacts. Those impacts are analyzed in the EIS/EIR sections for air, noise and traffic and appropriate mitigation measures have been provided in those sections to address these potential adverse impacts of the SOCTIIP Alternatives on schools.

Measure PS-14: Direct Permanent Impacts on Schools. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with the school districts or private schools whose facilities will be permanently acquired to determine appropriate action and/or compensation to mitigate for the permanent acquisition.

Measure PS-15: Direct Temporary Impacts on Schools. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with the school districts whose facilities will be temporarily removed during construction to determine appropriate action and or compensation to mitigate for the temporary use.

Mitigation for Public Facilities

Short term construction impacts and long term operational impacts on public facilities potentially include air, noise and traffic related impacts. Those impacts are analyzed in the EIS/EIR Sections for air, noise and traffic and appropriate mitigation measures are provided in those sections to address these potential adverse impacts of the SOCTIIP Alternatives on public facilities.

Measure PS-16: Public Facilities. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with owners of public facilities that will be removed, partially removed or will experience loss of parking facilities, to determine appropriate action and/or compensation to mitigate for the temporary use and/or permanent acquisition.

Mitigation Measures for Public Utilities

Measure U-1: Utilities. As early as possible during final design, the TCA or other implementing agency/agencies, as appropriate, will consult with each utility provider/owner to avoid or reduce potential impacts on existing and planned utilities through design refinements. Should impacts

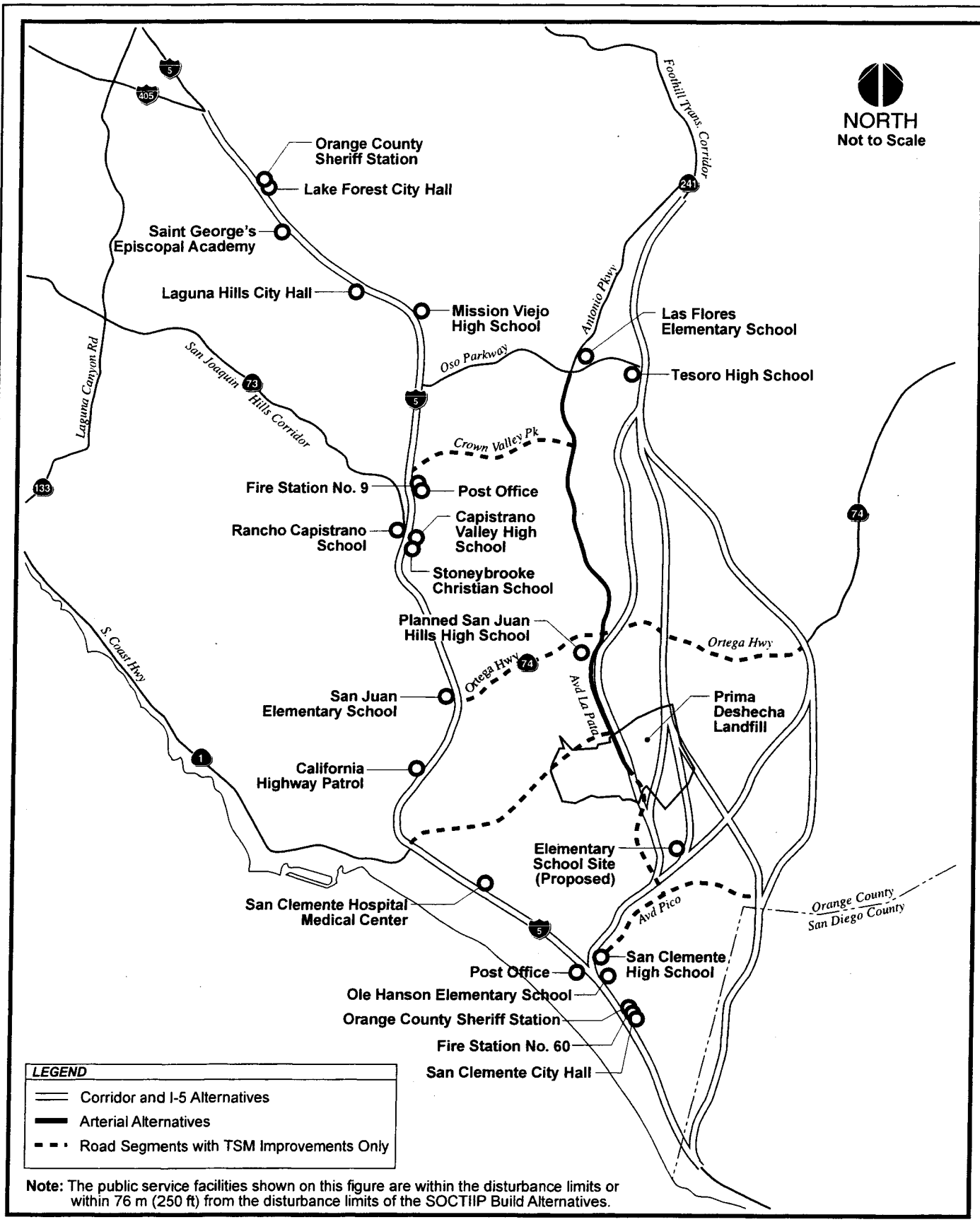
be unavoidable, all affected facilities shall be relocated or protected in place prior to, during or after construction, as appropriate, and in accordance with the methods and designs approved by the affected utility provider/owner. For utilities located on MCB Camp Pendleton, as early as possible the TCA or other implementing agency/agencies will consult with and receive approval from the Marine Corps on any utility relocations or realignments prior to discussing the proposed activities with utility providers.

Measure U-2: Temporary Use and Permanent Acquisition. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with utility providers whose facilities will be temporary used and/or permanently acquired to determine appropriate action and/or compensation to mitigate for the temporary use and/or permanent acquisition of their property.

Measure U-3: MCB Camp Pendleton Percolation Ponds. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 appropriate action and compensation to reduce the effect of the encroachment on MCB Camp Pendleton will be negotiated with the Department of the Navy.

4.24.4.3 Summary of Impacts and Mitigation Measures Related to Public Services and Utilities

Tables 4.24-12 through 4.24-20 provide a summary of impacts and mitigation measures for each of the SOCTIIP Alternatives.



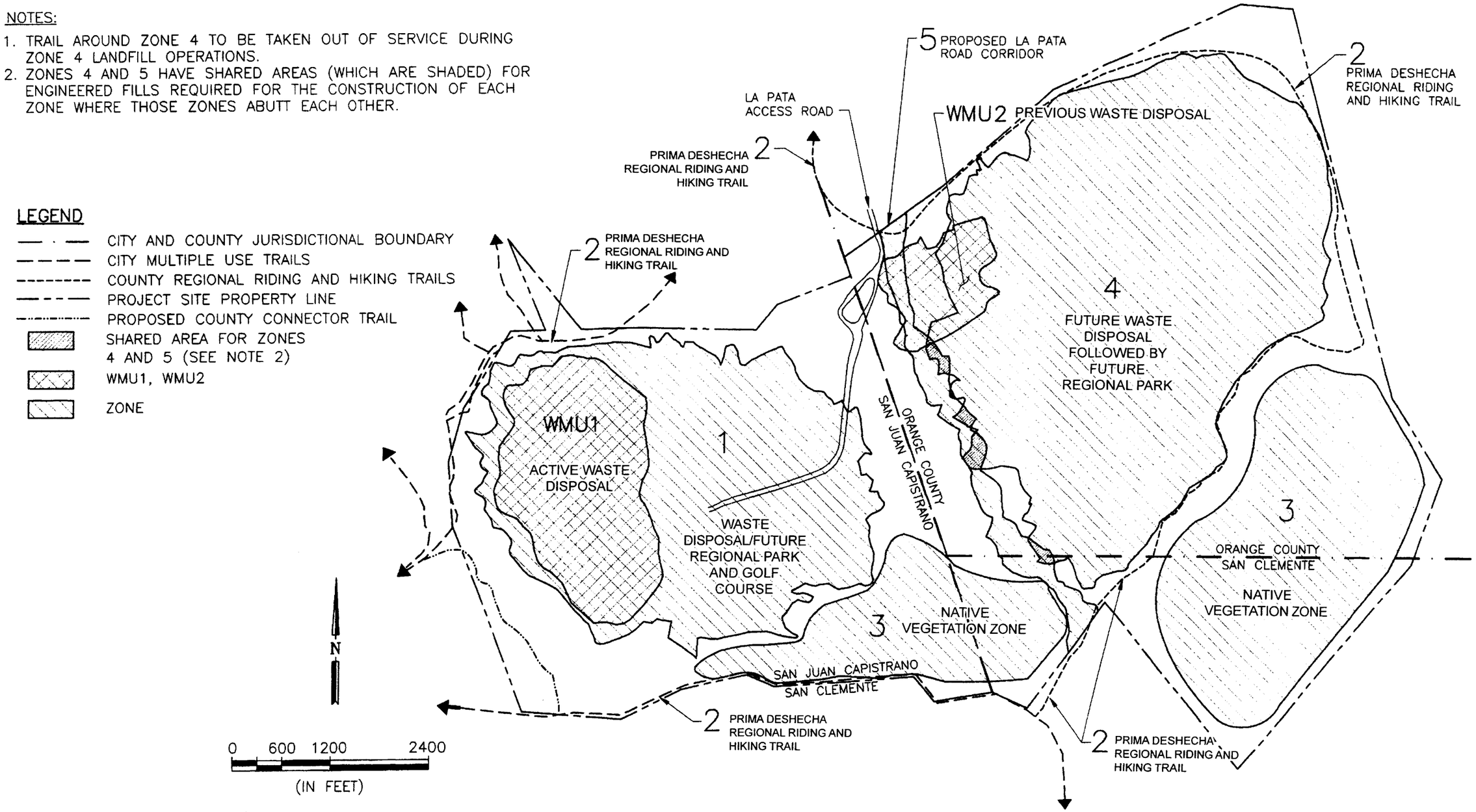
Note: The public service facilities shown on this figure are within the disturbance limits or within 76 m (250 ft) from the disturbance limits of the SOCTIIP Build Alternatives.

Source: P&D Consultants (2002).

Public Service Facilities Near the Alignments of the SOCTIIP Build Alternatives

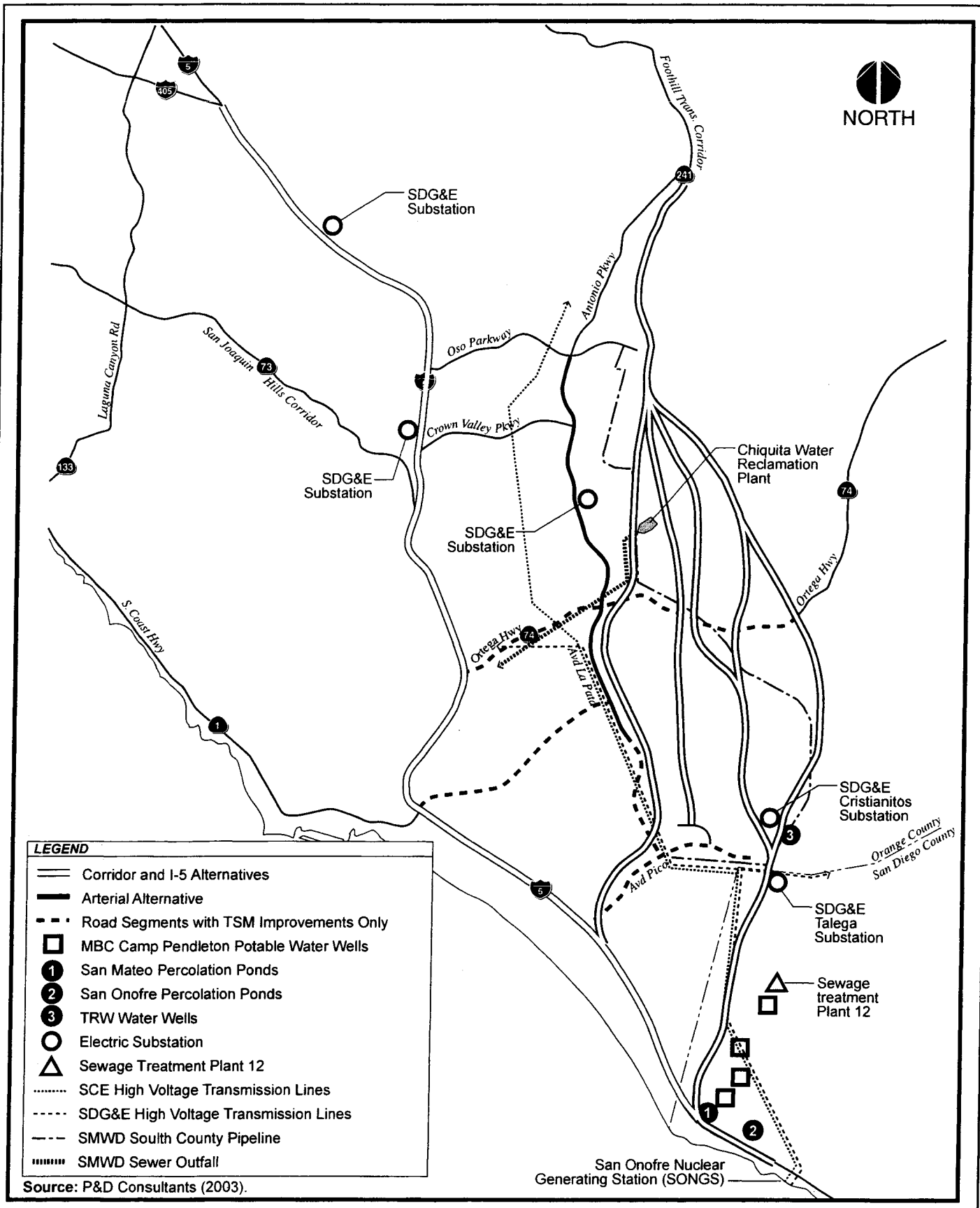
NOTES:

1. TRAIL AROUND ZONE 4 TO BE TAKEN OUT OF SERVICE DURING ZONE 4 LANDFILL OPERATIONS.
2. ZONES 4 AND 5 HAVE SHARED AREAS (WHICH ARE SHADED) FOR ENGINEERED FILLS REQUIRED FOR THE CONSTRUCTION OF EACH ZONE WHERE THOSE ZONES ABUTT EACH OTHER.



SOURCE: PRIMA DESHECHA LANDFILL, 2001 General Development Plan

Prima Deshecha Landfill



Source: P&D Consultants (2003).

Major Utility Lines and Facilities Near the Alignments of the SOCTIIP Build Alternatives

TABLE 4.24-1
IMPACTS ON SCHOOLS

	Temporary Impacts hectares (acres)	Permanent Impacts (ROW) hectares (acres)
IMPACTS ON TESORO HIGH SCHOOL		
FEC-W	0 (0)	0 (0)
FEC-M	0 (0)	0 (0)
CC-Initial	0.8 (2.0)	0.4 (1.0)
CC-Ultimate	1.1 (2.8)	0.4 (1.0)
CC-ALPV-Initial	0.8 (2.0)	0.4 (1.0)
CC-ALPV-Ultimate	1.1 (2.8)	0.4 (1.0)
A7C-ALPV-Initial	0.7 (1.8)	0.4 (1.0)
A7C-ALPV-Ultimate	1.3 (3.2)	0.4 (1.0)
A7C-FEC-M	0 (0)	0 (0)
IMPACTS ON MISSION VIEJO HIGH SCHOOL		
I-5	0.7 (1.6)	0.6 (1.5)
IMPACTS ON SAN CLEMENTE HIGH SCHOOL		
CC-Initial	2.8 (7.0)	2.4 (6.0)
CC-Ultimate	2.8 (7.0)	2.4 (6.0)
I-5	2.0 (5.0)	2.0 (5.0)
IMPACTS ON RANCHO CAPISTRANO SCHOOL (PRIVATE)		
I-5	2.3 (5.6)	2.3 (5.6)
IMPACTS ON SAN JUAN ELEMENTARY SCHOOL		
I-5	0.5 (1.3)	0.5 (1.3)
IMPACTS ON LAS FLORES ELEMENTARY SCHOOL		
AIO	2.5 (6.2)	2.1 (5.2)
IMPACTS OF OLE HANSON ELEMENTARY SCHOOL		
CC	0.8 (2.0)	0.7 (1.7)
I-5	0.5 (1.3)	0.5 (1.3)
IMPACTS ON SAINT GEORGE'S EPISCOPAL ACADEMY (PRIVATE)		
I-5	0.4 (1.0)	0.4 (1.0)
IMPACTS ON SAN JUAN HILLS HIGH SCHOOL		
AIO	0.4 (1.0)	0.4 (1.0)

Source: P&D Consultants (2003).

TABLE 4.24-6
IMPACTS ON ELECTRIC TOWERS AND LARGE POLES

Location Description	Number of Towers and Large Poles Within the Alignment Disturbance Limits	Maximum Number of Towers and Large Poles to be Relocated/Added (1)	Maximum Area of Temporary and Permanent Disturbance for Tower and Large Pole Relocation hectares (acres) (1)	Maximum Permanent Impact Area for Towers and Large Poles square meters (square feet) (1)	Maximum Permanent Impact Area for Utility Access Roads hectares (acres) (1)
FEC-W Alternative					
South of Ortega Highway	7 poles	7 poles	3.5 (8.7)	16.3 (175)	0.1 (0.2)
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
FEC-M Alternative					
East of Donna O'Neill Land Conservancy	3 poles	4 poles	1.3 (3.2)	9.3 (100)	0.2 (0.5)
Southeast of Donna O'Neill Land Conservancy	6 poles	6 poles	1.4 (3.4)	13.9 (150)	0
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
CC Alternative					
North of San Juan Creek.	1 pole	4 poles	3.6 (8.3)	9.3 (100)	0
Southeast of Prima Deshecha Regional Landfill entry road. (Ultimate only)	1 pair pole	2 pair poles	1.3 (3.3)	9.3 (100)	0
North of Avenida Pico in the City of San Clemente. (Initial)	4 towers, 6 pair poles, 5 poles	12 towers, 14 pair poles, 13 poles	30.9 (76.5)	541.2 (5825)	2.5 (6.2)

TABLE 4.24-6
IMPACTS ON ELECTRIC TOWERS AND LARGE POLES

Location Description	Number of Towers and Large Poles Within the Alignment Disturbance Limits	Maximum Number of Towers and Large Poles to be Relocated/Added (1)	Maximum Area of Temporary and Permanent Disturbance for Tower and Large Pole Relocation hectares (acres) (1)	Maximum Permanent Impact Area for Towers and Large Poles square meters (square feet) (1)	Maximum Permanent Impact Area for Utility Access Roads hectares (acres) (1)
North of Avenida Pico in the City of San Clemente. (Ultimate)	4 Towers, 6 pair poles, 5 poles	12 towers, 14 pair poles, 13 poles	28.5 (70.4)	541.2 (5825)	2.5 (6.2)
CC-ALPV-Initial					
North of San Juan Creek.	1 pole	4 poles	3.6 (8.3)	9.3 (100)	0
Southeast of the City of San Juan Capistrano in the City of San Clemente.	3 Towers, 3 pair poles, 3 poles	6 towers, 5 pair poles, 5 poles	6.5 (16.0)	257.8 (2775)	0.8 (2.0)
CC-ALPV Ultimate					
North of San Juan Creek.	1 pole	4 poles	3.6 (8.3)	9.3 (100)	0
Southeast of Prima Deshecha Regional Landfill entry road. (Ultimate only)	1 pair pole	2 pair poles	0.6 (1.4)	9.3 (100)	0
North of Avenida Pico in the City of San Clemente. (Ultimate)	4 Towers, 5 pair poles, 4 poles	10 towers, 11 pair poles, 10 poles	27.6 (68.3)	445.9 (4800)	2.1 (5.2)
A7C-ALPV Alternative					
North of San Juan Creek.	1 pole	4 poles	1.1 (2.8)	9.3 (100)	0
A7C-FEC-M Alternative					
North of Ortega Highway	None	1 pole	1.2 (2.9)	2.3 (25)	1.8 (4.4)
North end of SOSB, Cristianitos subunit.	2 towers, 6 poles	5 towers, 10 poles	5.9 (14.7)	209.0 (2250)	1.1 (2.8)
SOSB, Cristianitos Subunit, southeast of Avenida La Pata	4 towers, 2 pair poles	6 towers, 2 pair poles	5.8 (14.4)	232.3 (2500)	0
North of San Mateo Campground.	3 poles	16 poles	6.4 (15.9)	37.2 (400)	0.9 (2.2)
AIO					
North of Avenida Pico in the Cities of San	12 towers, 8 pair poles,	18 towers, 12 pair	36.6	747.9	2.1

TABLE 4.24-6
IMPACTS ON ELECTRIC TOWERS AND LARGE POLES

Location Description	Number of Towers and Large Poles Within the Alignment Disturbance Limits	Maximum Number of Towers and Large Poles to be Relocated/Added (1)	Maximum Area of Temporary and Permanent Disturbance for Tower and Large Pole Relocation hectares (acres) (1)	Maximum Permanent Impact Area for Towers and Large Poles square meters (square feet) (1)	Maximum Permanent Impact Area for Utility Access Roads hectares (acres) (1)
Clemente and San Juan Capistrano and the County of Orange.	6 poles	poles, 10 poles	(90.4)	(8050)	(5.2)
I-5 – No Tower/Large Pole Relocation					

1) Outside the disturbance limits for the alignments of the build Alternatives.

Source: Corridor Design Management Group and P&D Consultants (2003).

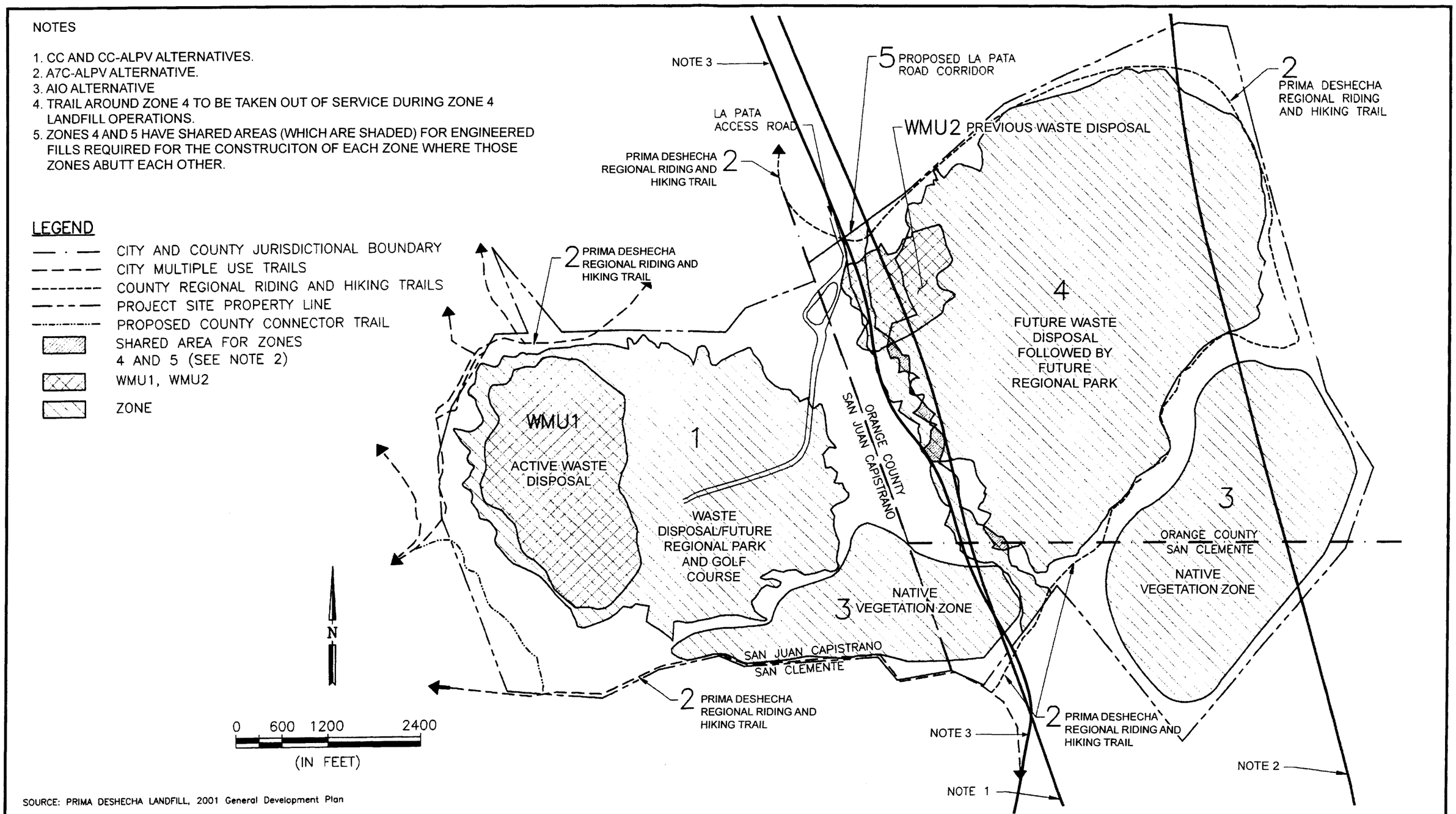
SOSB – San Onofre State Beach

Table 4.24-7
Impacts on the San Onofre Percolation Ponds

Alternative	Temporary Impacts hectares (acres)	Permanent Impacts ROW hectares (acres)
FEC-W Alternative	0.7 (1.7)	0.4 (1.0)
FEC-M Alternative	0.7 (1.7)	0.4 (1.7)
A7C-FEC-M Alternative	0.7 (1.7)	0.4 (1.7)

NOTES

1. CC AND CC-ALPV ALTERNATIVES.
2. A7C-ALPV ALTERNATIVE.
3. AIO ALTERNATIVE
4. TRAIL AROUND ZONE 4 TO BE TAKEN OUT OF SERVICE DURING ZONE 4 LANDFILL OPERATIONS.
5. ZONES 4 AND 5 HAVE SHARED AREAS (WHICH ARE SHADED) FOR ENGINEERED FILLS REQUIRED FOR THE CONSTRUCITON OF EACH ZONE WHERE THOSE ZONES ABUTT EACH OTHER.



SOURCE: PRIMA DESHECHA LANDFILL, 2001 General Development Plan

Prima Deshecha Landfill and Intersecting SOCTIIP Alternatives

TABLE 4.24-8
ESTIMATED IMPACTS ON ZONE 4 AND WMU2 AT PRIMA DESHECHA LANDFILL

Alignment (1)	Excavation of WMU2 in mcm (mcy) (2)	Zone 4 Total Airspace Volume Reduction in mcm (mcy) (3)	Zone 4 Refuse Average Capacity Reduction in mcm (mcy) (4)	Zone 4 Refuse Tonnage Reduction in millions of metric tons (millions of tons) (5)	Lifespan Reduction in Years (6)
CC Alignment	1.5 (2.0)	3.4 (4.4)	2.6 (3.5)	2.1 (2.3)	1.9
A7C Alignment	0 (0)	8.6 (11.3)	6.8 (9.0)	5.4 (6.0)	4.9
Antonio/La Pata Alignment (7)	0.2 (0.3)	0	0.2 (0.3)	0.09 (0.1)	0.1

Notes:

(1) The Alternatives share common alignments across the Landfill as follows:
CC alignment: CC and CC-ALPV Alternatives.
Antonio/La Pata alignment: AIO Alternative.

(2) Based on an estimated 1.5 mcm (2.0 mcy) of refuse/soil excavation in WMU2 plus 0.4 mcm (0.5 mcy) of cover soils removed and redeposited elsewhere at Prima Deshecha Landfill for the CC alignments; substantially less for the Antonio/La Pata alignment.

(3) Estimated average lost capacity in Zone 4, based on airspace, as a result of the alignment, the disturbance limits, right-of-way limits and required restrictions in landfilling near the road alignment.

(4) Estimated average lost capacity in Zone 4, based on conversion of airspace of refuse capacity, as a result of the alignment, the disturbance limits, right-of-way limits and required restrictions in landfilling near the road alignment.

(5) Estimated reduction in total waste that could be deposited in Prima Deshecha Landfill as a result of lost capacity.

(6) Estimated reduction in the life of the Landfill due to lost capacity and reduced tonnage, assuming the Landfill accepts 3,268 metric tons per day (4,000 tons per day).

(7) Based on the conceptual alignment for this road assumed in the 2001 Prima Deshecha Landfill General Development Plan.

Source: Capacity and Lifespan Impacts of the SOCTIIP Corridor Alternatives to the Prima Deshecha Landfill (Bryan A. Stirrat and Associates, October 2002). This memorandum is provided in Appendix B.

mcm: million cubic meters. mcy: million cubic yards.

TABLE 4.24-9
IMPACTS TO PUBLIC SERVICE FACILITIES WITH THE I-5 WIDENING ALTERNATIVE

Type of Public Service	Facility	Jurisdiction	Impact	Take (Full or Partial)
Law Enforcement	Lake Forest Community Office	Orange County Sheriff's Department	Loss of entire Community Office.	Partial take of building and property.
Schools	Mission Viejo High School	Saddleback Valley Unified School District	Temporary loss of use of 0.7 ha (1.6 ac) and permanent acquisition of 0.6 ha (1.5 ac) including part of the baseball fields, snack bar and bleachers associated with football field/track facility. Permanent displacement of storage sheds.	Partial
	Ole Hanson Elementary School	Capistrano Unified School District	Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) hillside landscaping. No loss of facilities or play area.	Partial
	Rancho Capistrano School	Private	Temporary loss of use and permanent acquisition of 2.3 ha (5.6 ac) including part of playing fields and 3 buildings.	Partial
	San Clemente High School	Capistrano Unified School District	Temporary loss of use and permanent acquisition of 2.0 h a(5.0 ac) of ball fields, tennis courts, handball courts, potential loss of a scoreboard, loss of land adjacent to football field/track facility.	Partial
	Saint George's Episcopal Academy	Private	Temporary loss of use and permanent acquisition of 0.4 ha (1.0 ac) including school building and loss of paved athletic area/parking.	Partial
	San Juan Elementary School	Capistrano Unified School District	Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) including 2 permanent buildings and 2 portable buildings.	Partial
City Halls	Laguna Hills City Hall	Laguna Hills	Temporary loss of use and permanent acquisition of 0.2 ha (0.5 ac) of landscaped area.	Partial
	Lake Forest City Hall	Lake Forest	Temporary loss of use and permanent acquisition of west end of building with some conference room space. Loss of some parking spaces. Total 0.1 ha (0.3 ac).	Partial

TABLE 4.24-9
IMPACTS TO PUBLIC SERVICE FACILITIES WITH THE I-5 WIDENING ALTERNATIVE

Type of Public Service	Facility	Jurisdiction	Impact	Take (Full or Partial)
Post Offices	San Clemente Post Office	United States Government	Temporary loss of use and permanent acquisition of 1.2 ha (2.8 ac) including entire facility including building and parking.	Full
Sports Fields	Buccheim Fields	San Juan Capistrano	Temporary loss of use and permanent acquisition of 1.3 ha (3.3 ac).	Partial

Note: Full and partial take status subject to change based on Relocation Impact Technical Report. (P&D Consultants, 2003).
Source: P&D Consultants (2003).

TABLE 4.24-10
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO.3

Mitigation Measures From EIR No.3	Proposed Status
Measure 49a – Police Services. In conjunction with the final design, the Transportation Corridor Agencies (TCA) shall coordinate with the California Highway Patrol (CHP) to ensure that adequate paved shoulders are provided and lighting requirements are met for efficient patrol of the corridor.	This measure is proposed to be deleted because all the SOCTIIP build Alternatives would be designed consistent with Caltrans standards that include adequate enforcement areas. Therefore, this mitigation measure is unnecessary.
Measure 49b – Police Services. In conjunction with the final design, the TCA shall evaluate the feasibility of adding a frontage road on the west side of the Corridor between Avenida Pico and Avenida Presidio. The addition of OPTICON upgrades to the Presidio area shall be evaluated.	This part of Measure 49b is proposed to be deleted because the need for such a frontage road has not been identified by any of the responding enforcement agencies. Therefore, this measure does not address any identified impact and is not necessary. This part of measure 49b has been incorporated in current measure PS-8.
Measure 50 – Fire Services. The landscape palettes to be developed for areas adjacent to the road will incorporate plant materials indigenous to the project area, to the extent feasible. It is possible that portions of the landscaped areas adjacent to the road will be subject to fuel modification practices, including an irrigated wet zone.	This measure has been incorporated in current measure PS-7.
Measure 51 – Water Facilities. Prior to the final design, the TCA shall consult with the Santa Margarita Water District (SMWD), Tri-Cities Municipal Water District (TCMWD), California Department of Parks and Recreation (DPR) and the City of San Clemente to reduce potential impacts on existing and planned water lines. Should impacts be unavoidable, all affected facilities shall be relocated or protected in place prior to start of construction activity, in accordance with the methods and designs approved by the utility owners.	This measure has been incorporated in current measure U-1.
Measure 52 – Sewer Facilities. Prior to the final design, the TCA shall consult with the SMWD, TCMWD, DPR and the City of San Clemente to reduce potential impacts on existing and planned sewer lines. Should impacts be unavoidable, all affected facilities shall be relocated or protected in place prior to start of construction activity, in accordance with the methods and designs approved by the utility owners.	This measure has been incorporated in current measure U-1.

TABLE 4.24-10
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO.3

Mitigation Measures From EIR No.3	Proposed Status
Measure 53 – Natural Gas and Electric. Prior to the final design, the TCA shall consult with the Southern California Gas Company (SCG) to reduce potential impacts on existing and planned natural gas lines. Should impacts be unavoidable, all affected facilities shall be relocated or protected in place prior to start of construction activity, in accordance with the methods and designs approved by the gas company.	This measure has been incorporated in current measure U-1.
Measure 54 – Natural Gas and Electric. Prior to the final design, the TCA shall consult with the SCG and San Diego Gas and Electric (SDG&E) to reduce potential impacts to existing and planned electric facilities. Should impacts be unavoidable, all affected facilities shall be relocated or protected in place prior to start of construction activity, in accordance with the methods and designs approved by the utility owners.	This measure has been incorporated in current measure U-1.
Measure 55 – Solid Waste. Prior to the final design of the proposed BX [now referred to as the Central Corridor] Alignment, if chosen, the TCA shall consult with site engineers from the Prima Deshecha Sanitary Landfill to discuss measures to reduce potential impacts on the landfill. Any construction across or excavation of the landfill shall be carried out after appropriate study and in conformation with all pertinent local, state and federal regulations.	This measure has been incorporated in current measure PS-11.

Source: P&D Consultants (2002).

TABLE 4.24-11
SUMMARY OF THE APPLICABILITY OF THE MITIGATION MEASURES BY ALTERNATIVE

Measures	Alternatives									
	FEC-W	FEC-M	CC-I	CC-U	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5	No Action – OCP-2000 and RMV
PS-1	✓	✓	✓	✓	✓	✓	✓	✓	✓	--
PS-2	✓	✓	✓	✓	✓	✓	✓	✓	--	--
PS-3	✓	✓	✓	✓	✓	✓	✓	✓	--	--
PS-4	✓	✓	✓	✓	✓	✓	✓	✓	--	--
PS-5	✓	✓	✓	✓	✓	✓	✓	✓	--	--
PS-6	✓	✓	✓	✓	✓	✓	✓	✓	--	--
PS-7	✓	✓	✓	✓	✓	✓	✓	✓	--	--
PS-8	--	--	✓	✓	✓	--	--	--	--	--
PS-9	--	--	--	--	--	--	--	--	--	--
PS-10	✓	✓	--	--	--	--	✓	--	--	--
PS-11	--	--	✓	✓	✓	✓	--	✓	--	--
PS-12	--	--	✓	✓	✓	✓	--	✓	--	--
PS-13	--	--	--	✓	--	--	--	--	--	--
PS-13A	--	--	--	✓	--	--	--	--	✓	--
PS-14	--	--	✓	✓	✓	✓	--	✓	✓	--
PS-15	--	--	✓	✓	✓	✓	--	✓	✓	--
PS-16	--	--	--	--	--	--	--	--	✓	--
U-1	✓	✓	✓	✓	✓	--	--	--	✓	
U-2	✓	✓	--	--	--	✓	✓	✓	✓	

TABLE 4.24-12
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE FEC-W ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 21.2 kilometers (km) (13.2 miles (mi)) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the Orange County Fire Authority (OCFA) or Marine Corps Base (MCB) Camp Pendleton Fire Department, as appropriate.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate. PS-6 During final design, incorporate access to the OCFA or MCB Camp Pendleton fire road grid in the design, as appropriate.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate.
Law Enforcement	The need for non-federal law enforcement service on the corridor segment through MCB Camp Pendleton. Potentially adverse if no non-federal law enforcement is provided.	PS-10 Prior to operation, transfer law enforcement jurisdiction from the federal government to the State of California.
Solid Waste Disposal Services	None.	None required.
Schools	None.	None required.
Public Services Facilities	None.	None required.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) at the SDG&E Cristianitos substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.

TABLE 4.24-12
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE FEC-W ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 21.6 ha (53.7 ac) and permanent take of 494.7 sq m (5325 sq ft) for utility structures and 2.1 ha (5.2 ac) permanent take for access roads. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
	Temporary loss of use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the SDG&E Talega Substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Percolation Ponds	Temporary use (0.7 ha (1.7 ac)) and permanent acquisition (0.4 ha (1.0 ac)) of one percolation pond on MCB Camp Pendleton for an extended detention basin (EDB). Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-3 Negotiate, with the Department of the Navy, appropriate action and compensation to reduce the effects of encroachment on MCB Camp Pendleton percolation pond.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

Source: P&D Consultants (2003).

TABLE 4.24-13
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE FEC-M ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 21.8 kilometers (km) (13.5 miles (mi)) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the Orange County Fire Authority (OCFA) or Marine Corps Base (MCB) Camp Pendleton Fire Department, as appropriate.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate. PS-6 During final design, incorporate access to the OCFA or MCB Camp Pendleton fire road grid in the design, as appropriate.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate.
Law Enforcement	The need for non-federal law enforcement service on the corridor segment through MCB Camp Pendleton. Potentially adverse if no non-federal law enforcement is provided.	PS-10 Prior to operation, transfer law enforcement jurisdiction from the federal government to the State of California.
Solid Waste Disposal Services	None.	None required.
Schools	None.	None required.
Public Services Facilities	None.	None required.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Initial: Temporary loss of use of 1.4 ha (3.4 ac) and permanent acquisition of 0.7 ha (1.7 ac) at the SDG&E Cristianitos substation. Adverse. Ultimate: Temporary loss of use of 1.4 ha (3.4 ac) and permanent acquisition of 1.0 ha (2.5 ac) of the SDG&E Cristianitos substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities.

TABLE 4.24-13
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE FEC-M ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
		U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 20.8 ha (51.6 ac) and permanent take of 501.7 sq m (5400 sq ft) for utility structures and 2.2 ha (5.2 ac) permanent take for access roads. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
	Temporary loss of use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the SDG&E Talega Substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Percolation Ponds	Temporary use (0.7 ha (1.7 ac)) and permanent acquisition (0.4 ha (1.0 ac)) of one percolation pond on MCB Camp Pendleton for an extended detention basin (EDB). Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-3 Negotiate, with the Department of the Navy, appropriate action and compensation to reduce the effects of encroachment on MCB Camp Pendleton percolation pond.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

Source: P & D Consultants (2003).

TABLE 4.24-14
SUMMARY OF IMPACTS AND MITIGATION MEASURES AND FOR THE CC ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 15.77 km (9.80 mi) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the OCFA.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid. PS-6 During final design, incorporate access to the OCFA fire road grid in the design.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid.
	Increased response time. Adverse.	PS-8 During final design, coordinate the addition of OPTICON or other traffic pre-emption devices with the City of San Clemente.
Law Enforcement	Short and long term, increased response times. Adverse.	PS-8 During final design, coordinate the addition of OPTICON or other traffic pre-emption devices with the City of San Clemente.
Solid Waste Disposal Services	Relocation of part of the existing Prima Deshecha Landfill operations facilities. Adverse.	U-1 Prior to, during or after construction relocate or protect utilities/facilities in place as approved by utility providers/owners.
	Long term impacts to Prima Deshecha Landfill with capacity reduced by 2.6 mcm (3.5 mcy) and the Landfill lifespan reduced by 1.9 years. Adverse.	PS-11 Consult with Prima Deshecha engineers to develop and implement measures to minimize capacity and lifespan impacts.
	Short term, blocked access to Zone 4 proposed landfilling area. Adverse.	PS-12 Provide and maintain access to Zone 4 of the Prima Deshecha Landfill.
	Ultimate: Generation and disposal of up to 1.8 mcm (2.4 mcy) of excess soil and rock material. Adverse.	PS-13 Implement alternatives to disposal of excess material in area landfills. PS-13A Excess fill will not be deposited at MCB Camp Pendleton landfills without advance approval from the Base.

TABLE 4.24-14
SUMMARY OF IMPACTS AND MITIGATION MEASURES AND FOR THE CC ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Schools	Initial: Tesoro High School: Temporary loss of use of 0.8 ha (2.0 ac) and permanent acquisition of 0.4 ha (1.0 ac) of land currently used for landscaping, road access and parking. Adverse. Ultimate: Tesoro High School – Temporary use of 1.1 ha (2.8 ac) and permanent acquisition of 0.4 ha (1.0 ac) of property currently used for landscaping, road access and parking. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities.
	San Clemente High School – Temporary loss of use of 2.8 ha (7.0 ac) and permanent acquisition of 2.4 ha (6.0 acres) of property including part of the football/track facility, ball fields, tennis courts and handball courts. Adverse.	PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	Ole Hanson Elementary School – Temporary loss of use of 0.8 ha (2.0 ac) and permanent acquisition of 0.7 ha (1.7 ac) of paved playground and displacement of existing portable classroom. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities.
Public Services Facilities	Temporary loss of use of and permanent acquisition of 0.4 ha (1.0 ac) of San Clemente Post Office. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-16 Negotiate with public facility owner to determine acceptable actions for permanent loss of facilities.

TABLE 4.24-14
SUMMARY OF IMPACTS AND MITIGATION MEASURES AND FOR THE CC ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1	Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Initial: CWRP Access Road: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 1.8 ha (4.5 ac) of access road. Not adverse because this includes realignment and replacement of the road before the existing road is disturbed. Ultimate: CWRP Access Road: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 2.0 ha (5.0 ac) of access road. Not adverse because this includes realignment and replacement of the road before the existing road is disturbed.	PS-1 U-2	Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
	Initial: Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 34.5 ha (84.4 ac) and permanent take of 550.5 sq m (5925 sq ft) for utility structures and 2.5 ha (6.2 ac) permanent take for access roads. Adverse. Ultimate: Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 33.4 ha (82 ac) and permanent take of 599.8 sq m (6025 sq ft) for utility structures and 2.5 ha (6.2 ac) permanent take for access roads. Adverse.	PS-1 U-1 U-2	Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners. Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Flood Control Facilities	None.	None required.	
Emergency Evacuation	None.	None required.	

[1]. The full text of all the mitigation measures is provided in Section 4.24.4 (Mitigation Measures).
Source: P&D Consultants (2003).

TABLE 4.24-15
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE CC-ALPV ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 13.41 km (8.33 mi) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the OCFA.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid. PS-6 During final design, incorporate access to the OCFA fire road grid in the design.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid.
Law Enforcement	None.	None required.
Solid Waste Disposal Services	Relocation of part of the existing Prima Deshecha Landfill operations facilities. Adverse.	U-1 Prior to, during or after construction relocate or protect utilities/facilities in place as approved by utility providers/owners.
	Long term impacts to Prima Deshecha Landfill with capacity reduced by 2.6 mcm (3.5 mcy) and lifespan reduced by 1.9 years. Adverse.	PS-11 Consult with Prima Deshecha engineers to develop and implement measures to minimize capacity and lifespan impacts.
	Short term, blocked access to Zone 4 proposed landfilling area. Adverse.	PS-12 Provide and maintain access to Zone 4 of the Prima Deshecha Landfill.
Schools	Initial: Tesoro High School - Temporary loss of use of 0.8 ha (2.0 ac) and permanent acquisition of 0.4 ha (1.0 ac)of property currently used for landscaping, access road and parking. Adverse. Ultimate: Tesoro High School – Temporary loss of use of 1.1 ha (2.8 ac) and permanent acquisition of 0.4 ha (1.0 ac) of property currently used for landscaping, access road and parking. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.

TABLE 4.24-15
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE CC-ALPV ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Public Services Facilities	None.	None required.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Initial: CWRP Access Road: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 1.8 ha (4.5 ac) of access road. Not adverse because this includes realignment and replacement of the road before the existing road is disturbed. Ultimate: CWRP Access Road: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 2.0 ha (5.0) of access road. Not adverse because this includes realignment and replacement of the road before the existing road is disturbed.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
	Initial: Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 10.1 ha (24.3 ac) and permanent take of 267.1 sq m (2875 sq ft) for utility structures and 0.8 ha (2.0 ac) permanent take for access roads. Adverse. Ultimate: Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 31.8 ha (78 ac) and permanent take of 464.5 sq m (5000 sq ft) for utility structures and 2.1 ha (5.2 ac) permanent take for access roads. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

[1] The full text of all the mitigation measures is provided in Section 4.24.4 (Mitigation Measures).

Source: P&D Consultants (2003).

TABLE 4.24-16
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE A7C-ALPV ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 12.95 km (8.05 mi) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the OCFA.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid. PS-6 During final design, incorporate access to the OCFA fire road grid in the design.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid.
Law Enforcement	None.	None required.
Solid Waste Disposal Services	Long term impacts to Prima Deshecha Landfill with capacity reduced by 6.8 mcm (9 mcy) and lifespan reduced by 4.9 years. Adverse.	PS-11 Consult with Prima Deshecha engineers to develop and implement measures to minimize capacity and lifespan impacts.
	Short term, blocked access within Zone 4 proposed landfilling area. Adverse.	PS-12 Provide and maintain access to Zone 4 of the Prima Deshecha Landfill.
Schools	Initial: Tesoro High School: Temporary loss of use of 0.7 ha (1.8 ac) and permanent acquisition of 0.4 ha (1.0 ac) of property used for landscaping, access road and parking. Adverse. Ultimate: Tesoro High School: Temporary loss of use of 1.3 ha (3.2 ac) and permanent acquisition of 0.4 ha (1.0 ac) of property used for landscaping, access road and parking. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
Public Services Facilities	None.	None required.

TABLE 4.24-16
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE A7C-ALPV ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1	Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Initial CWRP - Temporary loss of use and permanent acquisition of 6.2 ha (15.2 ac) of CWRP. Some existing treatment facilities would be removed. Adverse. Ultimate: CWRP – Temporary loss of use and permanent acquisition of 7.1 ha (17.6 ac) of the CWRP. Some existing treatment facilities would be removed. Adverse.	PS-1	Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property.
	Initial: CWRP Access Road - Temporary loss of use and permanent acquisition of 1.0 ha (2.6 ac) of access road. Not adverse because this includes realignment and replacement of the road before the existing road is disturbed. Ultimate: CWRP Access Road - Temporary loss of use and permanent acquisition of 1.1 ha (2.7 ac) of the access road. Not adverse because this includes realignment and replacement of the road before the existing road is disturbed.	U-2	Negotiate with utility provider to determine acceptable action and compensation for the temporary use and/or permanent acquisition of land.
	Initial: Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 1.1 ha (2.8 ac) and permanent take of 9.3 sq m (100 sq ft) for utility structures. There would be no permanent take for access roads. Adverse.	PS-1	Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property.
	Ultimate: Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 1.7 ha (4.1 ac) and permanent take of 9.3 sq m (100 sq ft) for utility structures. There would be no permanent take for access roads. Adverse.	U-1	Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.

TABLE 4.24-16
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE A7C-ALPV ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
		U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

[1] The full text of all the mitigation measures is provided in Section 4.24.4 (Mitigation Measures).

Source: P&D Consultants (2003).

TABLE 4.24-17
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE A7C-FEC-M ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 21.9 kilometers (km) (13.6 miles (mi)) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the Orange County Fire Authority (OCFA) or Marine Corps Base (MCB) Camp Pendleton Fire Department, as appropriate.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate. PS-6 During final design, incorporate access to the OCFA or MCB Camp Pendleton fire road grid in the design, as appropriate.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate.
Law Enforcement	The need for non-federal law enforcement service on the corridor segment through MCB Camp Pendleton. Potentially adverse if no non-federal law enforcement is provided.	PS-10 Prior to operation, transfer law enforcement jurisdiction from the federal government to the State of California.
Solid Waste Disposal Services	None.	None required.
Schools	None.	None required.
Public Services Facilities	None.	None required.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) at the SDG&E Cristianitos substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.

TABLE 4.24-17
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE A7C-FEC-M ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 19.3 ha (47.9 ac) and permanent take of 480.8 sq m (5175 sq ft) for utility structures and 3.8 ha (9.4 ac) permanent take for access roads. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
	Temporary loss of use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the SDG&E Talega Substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Percolation Ponds	Temporary use (0.7 ha (1.7 ac)) and permanent acquisition (0.4 ha (1.0 ac)) of one percolation pond on MCB Camp Pendleton for an extended detention basin (EDB). Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-3 Negotiate, with the Department of the Navy, appropriate action and compensation to reduce the effects of encroachment on MCB Camp Pendleton percolation pond.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

Source: P&D Consultants (2003).

TABLE 4.24-18
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE AIO ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the OCFA.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid. PS-6 During final design, incorporate access to the OCFA fire road grid in the design.
	Reduced access to medical emergencies during construction. Adverse.	PS-5 During construction, maintain access to the OCFA fire road grid.
Law Enforcement	None.	None required.
Solid Waste Disposal Services	Relocation of part of the existing Prima Deshecha Landfill operations facilities. Adverse.	U-1 Prior to, during or after construction relocate or protect utilities/facilities in place as approved by utility providers/owners.
	Long term impacts to Prima Deshecha Landfill with capacity reduced by 0.2 mcm (0.3 mcy) and lifespan reduced by 0.1 year. Adverse.	PS-11 Consult with Prima Deshecha engineers to develop and implement measures to minimize capacity and lifespan impacts.
	Short term and long term, blocked access to Zone 4 proposed landfilling area. Adverse.	P-12 Provide and maintain access to Zone 4 of the Prima Deshecha Landfill.
Schools	Las Flores Elementary School - Permanent acquisition of 2.1 ha (5.2 ac) of school property (playing fields). Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities.
	Las Flores Elementary School - Temporary loss of use of 2.5 ha (6.2 ac) of school land. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	Proposed San Juan Hills High School – Temporary loss of use and permanent acquisition of 0.4 ha (1.0 ac) of school land. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property.

TABLE 4.24-18
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE AIO ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
		PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
Public Services Facilities	None.	None required.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	CWRP Access Road: Temporary loss of use of 0.2 ha (0.6 ac) and permanent acquisition of 0.1 ha (0.2 ac) of the access road. Not adverse because this Alternative includes realignment and replacement of the road before the existing road is disturbed.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility provider to determine acceptable action and compensation for the temporary use and/or permanent acquisition of land.
	Temporary loss of use of 0.5 ha (1.3 ac) and permanent acquisition of 0.07 ha (0.2 ac) of the SDG&E Antonio Parkway substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility provider to determine acceptable actions and compensation for the temporary use and/or permanent acquisition of land.
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 36.6 ha (90.4 ac) and permanent take of 747.9 sq m (8050 sq ft) for utility structures and 2.1 ha (5.2 ac) permanent take for access roads. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

[1] The full text of all the mitigation measures is provided in Section 4.24.4 (Mitigation Measures).
Source: P&D Consultants (2003).

TABLE 4.24-19
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE I-5 WIDENING ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	Increased response time. Adverse.	PS-9 During construction, coordinate ramp closures and detour plans with fire, emergency medical and law enforcement providers.
Law Enforcement	Short and long term, increased response times. Adverse.	PS-9 During construction, coordinate ramp closures and detour plans with fire, emergency medical and law enforcement providers.
Solid Waste Disposal Services	Generation and disposal of up to 4.3 mcm (5.6 mcy) of excess soil and rock material. Adverse.	PS-13 Implement alternatives to disposal of excess material in area landfills. PS-13A Excess fill will not be deposited at MCB Camp Pendleton landfills without advance approval from the Base.
Schools	Mission Viejo High School – Permanent acquisition 0.6 ha (1.5 ac) including baseball fields, snack bar and bleachers associated with football field/track facility. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities.
	Mission Viejo High School - Temporary loss of use of 0.7 ha (1.6 ac) of school property (sports areas). Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	Ole Hanson Elementary School – Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) hillside landscaping. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	Rancho Capistrano School - Temporary loss of use and permanent acquisition of 2.3 ha (5.6 ac) of playing fields. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property.

TABLE 4.24-19
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE I-5 WIDENING ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
		PS-14 Negotiate with school to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	San Clemente High School – Temporary loss of use and permanent acquisition of 2.0 ha (5.0 acres) of property from the baseball field and the football/track facility. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	Saint George's Episcopal Academy – Temporary loss of use and permanent acquisition of 0.4 ha (1.0 ac) including school building and loss of paved athletic area/parking. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.
	San Juan Elementary School – Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) including 2 permanent and 2 temporary buildings. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.

TABLE 4.24-19
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE I-5 WIDENING ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Public Services Facilities	Lake Forest City Hall – Temporary loss of and permanent acquisition of 0.1 ha (0.3 ac) including loss of west end of building with some conference room space. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-16 Negotiate with public facilities owner to determine acceptable action and compensation for permanent loss of facilities.
	Laguna Hills City Hall - Temporary loss of use and permanent acquisition of 0.2 ha (0.5 ac) of City Hall property. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-16 Negotiate with public facility owner to determine acceptable action and compensation for permanent loss of facilities.
	San Clemente Post Office - Temporary loss of use and permanent acquisition of 1.2 ha (2.8 ac) of post office property. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-16 Negotiate with public facility owner to determine acceptable action and compensation for permanent loss of facilities.
	Buccheim Fields - Temporary loss of use and permanent acquisition of 1.3 ha (3.3 ac). Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. PS-16 Negotiate with public facility owner to determine acceptable action and compensation for permanent loss of facilities.

TABLE 4.24-19
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE I-5 WIDENING ALTERNATIVE

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.
	Temporary loss of use and permanent acquisition of 0.004 ha (0.01 ac) at the SDG&E Laguna Hills substation and the temporary use and permanent acquisition of 0.9 ha (2.2 ac) at the SDG&E Crown Valley substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities property. U-2 Negotiate with utility provider to determine acceptable action and compensation for the temporary use and/or permanent acquisition of land.
Flood Control Facilities	None.	None required.
Emergency Evacuation	None.	None required.

[1] The full text of all the mitigation measures is provided in Section 4.24.4 (Mitigation Measures).

Source: P&D Consultants (2003).

TABLE 4.24-20
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE NO ACTION ALTERNATIVES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]
Fire Protection and Emergency Medical Services	None.	None required.
Law Enforcement	None.	None required.
Solid Waste Disposal Services	None.	None required.
Schools	None.	None required.
Public Services Facilities	None.	None required.
Utilities	None.	None required.
Percolation Ponds	None.	None required.
Flood Control Facilities	None.	None required.
Emergency Evacuation	Fails to provide an alternative access route for emergency evacuation and emergency service providers. Provision of alternate emergency access is an objective of the proposed project.	None proposed.

[1] The full text of all the mitigation measures is provided in Section 4.24.4 (Mitigation Measures).
Source: P&D Consultants (2003).

4.25 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION MEASURES RELATED TO RECREATION RESOURCES

The potential impacts of the SOCTIIP Alternatives on recreation resources are evaluated in detail in the Recreation Resources Technical Report (P&D Consultants, 2003) and are summarized in this Section. Refer to the Table of Contents for locations where this Technical Report is available for review or purchase.

4.25.1 AFFECTED ENVIRONMENT RELATED TO RECREATION RESOURCES

Recreation resources are resources which provide refreshment, diversion, entertainment and/or amusement. Existing and planned recreation resources in the SOCTIIP study area include state parks, regional parks, community parks, neighborhood parks, mini parks, school recreational facilities, and private parks and recreational facilities and special use facilities. These recreational resources were defined for this analysis as follows:

- A state park was defined as a park that is owned/leased and operated by the State of California Department of Parks and Recreation. State parks can include beaches, open space, picnic areas, boating, trails, organized sports activities and/or parking.

- A regional park was defined as a park that is operated by the County of Orange Department of Harbors, Beaches and Parks. Regional parks can include open space, picnic areas, boating, trails, organized sports activities and/or parking.

- A community park was defined as a park that is usually 4.1 ha (10 ac) or larger in size which serves the recreational needs of several neighborhoods. Community parks may include multi-purpose sports fields, basketball courts, baseball fields, tennis courts, volleyball courts, swimming pools, community centers and/or parking.

- A neighborhood park was defined as a park that is usually greater than 0.41 ha (1 ac) and may be as large as 4.1 ha (10 ac) and which serves the recreation needs of a single neighborhood. Neighborhood parks may include playground equipment, a baseball field, a basketball half-court, a picnic area and/or parking.

- A mini park was defined as a park that is less than 0.41 ha (1 ac) and which usually has quiet game areas and children's play areas. Some mini parks may be natural areas with no improvement to protect natural resources and/or scenic vistas.

- School recreational facilities were defined as the playing fields, track fields and pools located within school complexes and which are for use by students during school hours and which are open to the public at other times.

- Private parks and recreational facilities were defined as resources owned and operated by homeowners' associations or other parties for the exclusive use of association members or other restricted memberships. Private facilities may include any of the amenities that other parks include and may be of any size.

- Special use facilities were defined as facilities designed to meet the requirements of specific recreational, social and cultural activities. Golf courses, sports parks, equestrian centers and open space with associated trails are considered special use facilities.

The study area for recreation resources is shown on Figure 4.25-1. Table 4.25-1 and Figure 4.25-2 show the existing and proposed recreation resources in the City of San Clemente in the SOCTIIP study area. Existing recreational resources in the City in the study area are one regional park, two public special use facilities, three neighborhood parks, three community parks, four school sports fields and five privately owned special use facilities. Proposed recreation resources in the City in the study area are three special use facilities, six neighborhood parks and two community parks.

Table 4.25-2 and Figure 4.25-3 show the existing and proposed recreation resources in the City of San Juan Capistrano in the SOCTIIP study area. Existing recreational resources in the City in the study area are three special use facilities, two mini parks, two neighborhood parks, two school sports fields and two privately owned special use facilities. Proposed recreation resources in the City in the study area are one special use facility and one community park.

Table 4.25-3 and Figure 4.25-4 show the existing and proposed recreation resources in the City of Dana Point in the SOCTIIP study area. Existing recreational resources in the City in the study area are one neighborhood park and one school sports field. One neighborhood park is proposed in the City in the study area.

Table 4.25-4 and Figure 4.25-5 show the existing recreation resources in the City of Laguna Hills in the SOCTIIP study area. Existing recreational resources in the City in the study area are one neighborhood park, one community park and one privately owned special use facility. There are no planned recreation resources in the SOCTIIP study area in the City.

There are no existing or proposed recreation resources in the Cities of Laguna Niguel and Laguna Woods within 0.4 km (0.25 mi) of the centerlines of the SOCTIIP build Alternatives.

Table 4.25-5 and Figure 4.25-6 show the existing recreation resources in the City of Mission Viejo in the SOCTIIP study area. Existing recreational resources in the City in the study area are one mini park, four neighborhood parks, four school sports fields and one privately owned special use facility. There are no planned recreation resources in the SOCTIIP study area in the City of Mission Viejo.

Table 4.25-6 and Figure 4.25-7 show the existing recreation resources in the City of Lake Forest in the SOCTIIP study area. The one existing recreational resource in the City in the study area is a mini park. There are no planned recreation resources in the SOCTIIP study area in this City.

Table 4.25-7 and Figure 4.25-8 show the existing and proposed recreation resources in unincorporated Orange County in the SOCTIIP study area. Existing recreational resources in the unincorporated County territory in the study area are two regional parks, two school sports fields, two privately owned special use facilities and one special use facility. Proposed recreation

resources in the unincorporated County in the study area are two regional parks and one special use facility.

Table 4.25-8 and Figure 4.25-9 show the existing recreation resources in unincorporated San Diego County in the SOCTIIP study area. Existing recreational resources in unincorporated County territory in the study area are one state park (which includes an existing regional public bicycle trail) and one military community facility (MCB Camp Pendleton San Onofre Recreation Beach). There are no proposed recreation faculties in San Diego County in the SOCTIIP study area.

4.25.2 METHODOLOGY RELATED TO RECREATION RESOURCES

The study area for recreation resources was defined as the area within 0.4 km (0.25 mi) from the centerline of the SOCTIIP build Alternatives. This was determined to be a sufficient study area for recreation resources because it was assumed that impacts, either direct or indirect impacts, would not occur outside of a 0.4 km (0.25 mi) boundary per consultation with the noise assessment, visual impacts and air quality teams. Certain limited potential impacts, such as impacts from pile driving and some visual impacts were found to occur outside of this boundary and those impacts are included in the impact discussion of Section 4.25.3.

The existing and planned park and recreation facilities as defined in Section 4.25.1 in the SOCTIIP study area were identified based on several research approaches:

- Existing recreation facilities were identified based on detailed review of the "2000 Thomas Brothers Map – Orange County" and on review of General Plan Land Use and Recreation Elements for local jurisdictions in the study area.

- Once identified, the locations of existing facilities were confirmed through the use of aerial photographic maps (flight year 2000).

- Planned recreation resources and proposed modifications to existing facilities were identified based on the review of available planning and environmental documents for the jurisdictions in the SOCTIIP study area. The review included contacting city and county parks and recreation personnel, review of city and county General Plans including the Land Use, Open Space and Recreation Elements, park and recreation master plans, EIRs, park planning documentation and park standards guidelines.

- The existing resources were then plotted using Geographic Information System (GIS) mapping techniques on maps showing the alignments of the SOCTIIP build Alternatives and the 0.8 km (0.5 mi) wide area centered on the centerline of each build Alternative. Where the sites for planned facilities are known, those planned facilities were also mapped on the GIS system.

Information on existing and planned recreation resources was collected from available documentation (as described above), conversations with local jurisdictions' staff, field surveys, and windshield or drive-by surveys. The purpose of this data collection effort was to gather

sufficient data to identify and describe the amenities and functions of each of the recreation resources in the SOCTIIP study area. Photographs were taken at each site for use in further understanding the facilities and amenities at each recreation use. For each recreation facility, the following data were collected:

- Owner, operator.
- Location, address or nearest intersection and local jurisdiction.
- Type of facility: active or passive.
- Amenities at the facility, including sports fields, picnic areas, trails, clubhouses, restrooms, parking, beaches, etc.

The assessment of the potential for adverse impacts on recreation resources was conducted in two phases.

4.25.2.1 Preliminary Assessment of Direct and Indirect Impacts

The first phase of assessment identified those recreation resources which would be partially or fully acquired to construct a specific SOCTIIP build Alternative, based on the identified disturbance limits for each Alternative and the boundaries of recreation resources in the study area. The disturbance limits were provided by the TCA and then mapped on GIS base maps which included the boundaries of the recreation resources. The acquisition of recreation resource property for a SOCTIIP Alternative would be a direct adverse impact of that Alternative. Where a proposed recreation resource is known to be affected, it is noted as such. However, direct impacts on proposed resources could not always be quantified because the boundaries of planned resources are not always known.

The assessment reviewed all the recreation resources in the SOCTIIP study area and considered whether the resource was a sufficient distance from the centerline of the build Alternative and whether intervening topography or land uses would shield the recreation resource from potential indirect impacts associated with that SOCTIIP Alternative. In many cases, the combination of distance from the centerline and the presence of ridgelines and/or intervening urban/suburban land uses were determined to likely fully shield the recreation resource from indirect adverse impacts associated with the SOCTIIP build Alternatives.

<u>Noise Assessment</u>

Mestre Greve Associates (MGA 2003) identified generalized distances from the centerline for different road cross sections beyond which an Alternative would not result in noise levels greater than 66 decibels (dBA). For parks and recreation resources, the FHWA/Caltrans Noise Abatement Criteria (NAC) consider noise levels greater than 66 dBA to be of concern. Table 4.25-9 lists different road cross sections and the distance from a road centerline to the 66 dBA contour, assuming soft site conditions. Soft site conditions assume the area between the centerline and the 66 dBA contour is not developed in hard surfaces such as asphalt or concrete.

Air Quality Assessment

MGA (2003) identified a general criterion for preliminary assessment of air quality impacts on recreation resources. Based on models for estimating carbon monoxide (CO) and particulate matter less than 10 microns in diameter (PM_{10}) concentrations, recreation resources within 45.7 m (150 ft) of the road centerline are in an area of concern. Recreation resources beyond 45.7 m (150 ft) from the centerline are not expected to experience adverse air quality impacts. Further, if a recreation resource is separated from the road by a row of buildings, a wall or intervening topography, that resource is outside the area of concern because the intervening structures or topography would shield the resource from air quality impacts. Therefore, for the first phase assessment, recreation resources which meet one or both of the following criteria were determined not to be subject to air quality impacts as a result of the SOCTIIP build Alternatives:

- Resource is more than 45.7 m (150 ft) from the centerline of the road.
- There is an intervening wall, row of buildings or topography between the recreation resource and the road, such that no air quality impact would occur.

Traffic Assessment

For the first phase assessment, recreation resources were determined not to experience adverse impacts related to traffic and circulation as a result of the SOCTIIP Alternatives if the build Alternative would not reduce or restrict access on the public road or roads which provide direct access to the resource.

Visual Assessment

For the first phase assessment, recreation resources were determined not to experience adverse impacts related to aesthetics if they met one or more of the following criteria:

- There is intervening topography between the resource and the road such that the line of sight between the two is substantially disrupted/discontinuous.
- There are intervening structures between the resource and the road such that the line of sight between the two is substantially disrupted/discontinuous.
- The resource is in an existing developed area and the introduction of a new or widened road would not substantially change views from the resource of developed areas.

4.25.2.2 Detailed Assessment of Indirect Impacts

The detailed assessment of indirect impacts on recreation resources potentially impacted by a SOCTIIP Alternative was determined by establishing ambient conditions for the recreation resources and assessing the change in these conditions, if any, as a result of the SOCTIIP Alternatives, for noise, traffic, air quality and aesthetics. Indirect impacts are those impacts that do not result in a direct take of property, but which may affect the overall function of the

recreation resource or a particular amenity at the recreation resource. Based on information collected for baseline conditions, air quality, traffic and noise levels were quantitatively assessed to determine the extent of impacts under the SOCTIIP Alternatives. Visual impacts were qualitatively assessed.

Based on the preliminary assessment described above, a number of resources were determined to either be directly impacted (land acquisition) or to not experience impacts based on distance and intervening uses. The remaining resources were then assessed for potential indirect impacts which could adversely affect the use and enjoyment of the recreation resources. This analysis considered the following possible impact categories:

- Short term construction and long term operations noise impacts.
- Short term construction and long term operations air quality impacts.
- Short term construction and long term operations traffic impacts.
- Short term construction and long term visual impacts.

The analysis of these potential impacts of the SOCTIIP Alternatives related to recreation uses depends in a large part on the analyses conducted in the following technical reports:

- Noise Assessment Technical Report (Mestre Greve Associates, 2003).
- Air Quality Technical Report (Mestre Greve Associates, 2003).
- Traffic and Circulation Technical Report (Austin Foust Associates, 2003).
- Visual Impacts Assessment Technical Report (P&D Consultants, 2003).

Each of these technical reports provides a detailed methodology for identifying and assessing potential adverse impacts of the SOCTIIP Alternatives related to these parameters. These methodologies and assessment strategies are described briefly in the following Sections.

Water Quality

There are no indirect water quality impacts related to recreation resources. Water quality impacts are discussed in Section 4.9 (Affected Environment, Impacts and Mitigation Related to Water Quality). Because there are no adverse water quality impacts under the SOCTIIP build Alternatives, water quality is not assessed in this analysis of impacts in recreation resources.

Operations Noise Impacts

The County of Orange and the City of San Clemente Noise Ordinances do not regulate noise in recreation areas and uses. The operational noise standard used by FHWA and Caltrans is the 67 dBA (Leq) noise level (23 CFR 722). In addition to residential areas (including residences,

motels and hotels), the standard also applies to picnic areas, recreation areas, playgrounds, active sports areas, parks, schools, churches, libraries and hospitals. Energy-equivalent noise level (Leq) criteria were used in assessing potential operational noise impacts to park and recreation facilities based on peak traffic levels and distance from the future centerline of each alternative. Peak traffic levels are defined as 7:00 AM to 10:00 AM and 3:00 PM to 6:00 PM during weekdays. Recreation resources experiencing SOCTIIP related Leq levels greater than 66 dBA were considered to incur an adverse noise impact as a result of that alternative. This criterion assumes that there are no topographic barriers, soundwalls, rows of structures or extensive, stands of vegetation, etc. between the resource and road. These types of intervening barriers can result in reduced noise levels.

However, for operational noise, there is no universal standard that would apply to all of the recreation resources in the study area. Therefore, one guide used to evaluate the applicability of the noise standards is the frequency of human use. For recreation resources of frequent human use such as campgrounds, sports fields, golf courses, picnic and playground areas or other areas with outdoor facilities that encourage outdoor recreation use the FHWA and Caltrans residential operational noise standard of 67 dBA (Leq) was used to evaluate impacts. No noise standard applies to areas of infrequent human use such as undeveloped open space and trails which support intermittent use. The following is a list of types of use and the applicability of the noise standard:

Open space and trails. Noise standard applies only in areas of frequent human use such as campgrounds, sports fields, amphitheaters, etc. No noise standard applies to trails because trails do not support long term lingering use.
School sports fields. Noise standard applies.
Golf courses. Noise standard applies.
City and local parks. Noise standard applies.
Regional and state parks. Noise standard applies only in areas of frequent human use such as campgrounds, sports fields and areas with outdoor facilities which encourage outdoor recreation use.
Proposed resources. Noise standard applies at the time the resource is implemented.

Construction Noise Impacts

The County of Orange and the City of San Clemente Noise Ordinances do not regulate noise in recreation areas and uses. The operational noise standard used by FHWA and Caltrans is the 67 dBA (Leq) noise level which is used to design sound walls along residential areas (23 CFR 722). In addition to residential areas, the standard also applies to picnic areas, recreation areas, playgrounds, active sports areas, parks, etc. Normally, operational standards are more stringent than standards that apply to short term noise sources such as construction. However, because there are no standards in the local Noise Ordinances for construction noise at recreation uses, the FHWA/Caltrans 67 dBA (Leq) standard was used for evaluating whether the construction of the SOCTIIP Alternatives could result in substantial adverse noise impacts on recreation uses, as described below.

The standard of 67 dBA (Leq) applies to the peak noise hour. Leq is an average noise level, and was calculated for different construction scenarios in the Noise Assessment Technical Report. There are three primary sources for construction noise: pile driving, heavy construction and general construction. The distance to the 67 dBA (Leq) for pile driving is 481.6 m (1,580 ft). The distance to the 67 (Leq) for heavy construction is 215.2 m (706 ft). The distance to the 67 dBA (Leq) for general construction is 38.4 m (126 ft). Any receptors or land uses, such as parks, closer than these distances would be projected to experience noise levels greater than 67 dBA (Leq) during construction unless the line of sight is blocked by topography or buildings.

The distance to the 67 dBA (Leq) from heavy and general construction noise is much less than for pile driving. As a result, the potential noise impacts assessed regarding construction noise are divided into construction noise and pile driving noise. For construction noise, measurements were calculated from the edge of the disturbance limits for each Alternative, because that is the closest location of the noise source to the recreation uses.

Of the three construction noise sources, pile driving has the potential to be the loudest. However, pile driving is limited to those areas requiring a pier or vertical support structure, for example, a bridge or an elevated ramp. Therefore, noise measurements for pile driving are taken from the edge of the proposed elevated structure requiring piles, which is why these measurements differ in the analysis from both the operational noise measurements taken from centerline and the construction noise measurements taken from the edge of the construction disturbance area. Pile driving is similar to a hammer hitting a nail. The impact point starts at the height of the pile and proceeds to get lower as the pile is driven into the ground. Because pile driving noise is usually reported in terms of the peak noise level, pile driving noise data must be converted to a Leq noise level. If a pile driver impacts once every two seconds and the acoustic energy is contained within a 1 second period, then the peak noise levels can be converted into a Leq level. The angle of the noise impact on some pile drivers is such that topography and buildings that block the line of sight for grading equipment and general construction equipment may not block the line of sight for pile driving. Therefore, intervening topography or structures may not necessarily reduce the construction noise level at receptors that are in the line of sight of certain pile driving activities. Therefore, "hard site" conditions were assumed and are reflected in the distance to the 67 dBA (Leq) for pile driving. Finally, because the distance over which pile driving may result in a substantial adverse impact is so great (481.6 m (1,580 ft)), resources that were potentially screened out in the preliminary evaluation of impacts may be included as impacted solely by pile driving noise.

Assessment of Air Quality Impacts

The assessment of air quality impacts of the SOCTIIP Alternatives on recreation resources considered criteria developed by the South Coast Air Quality Management District (AQMD) for resources in close proximity to the roads. For both CO and particulate matter ten microns or smaller (PM_{10}), substantial adverse impacts were assumed for those facilities at which the AQMD standards are exceeded as a result of a SOCTIIP build Alternative. The Air Quality Technical Report concluded that:

- The construction related short term air quality impacts of the build Alternatives would exceed the defined threshold limits.

- None of the SOCTIIP build Alternatives results in an increase in the number or severity of air quality standard exceedences during operations.

As a result, the build Alternatives may result in short term adverse air quality impacts during construction on recreation resources but would not be expected to result in adverse impacts during operations. Therefore, this analysis focused on the potential for the construction of the build Alternatives to result in short term adverse air quality impacts on recreation resources. Resources greater than 45.7 m (150 ft) from the centerline would not be expected to experience adverse air quality impacts during construction. Resources within 45.7 m (150 ft) from the centerline were assumed to potentially experience short term adverse air quality impacts, particularly related to dust and equipment fumes, as a result of their proximity to active construction areas. Mitigation measures provided in Section 4.7 (Affected Environment, Impacts and Mitigation Related to Air Quality) would substantially reduce these short term air quality impacts. However, recreation resources within 45.7 m (150 ft) of the centerline of the build Alternatives would be subject to short term adverse air quality impacts during construction.

Assessment of Traffic Impacts

The assessment of traffic impacts of the SOCTIIP Alternatives on recreation resources considered whether or not access to a facility would be substantially altered due to the project. A substantial change was defined as one in which traffic generated by the SOCTIIP Alternative would inhibit existing users from accessing a resource due to extensive traffic delays. For this analysis, delays were considered substantial if vehicular access to the resource increased by more than 20 minutes for neighborhood parks, 40 minutes for community parks and 60 minutes for regional and state parks as a result of the SOCTIIP Alternatives.

The Traffic and Circulation Technical Report provided detailed analysis of the impacts of the build Alternatives under several land use and circulation scenarios. Generally, any adverse impacts of the build Alternatives are limited to adverse impacts at individual intersections throughout the study area. None of these impacts would be expected to substantially affect travel times near/to area recreation resources because for many of the resources, the impacted intersections are some distance from the resource or there are alternative routes to the resources that do not experience adverse traffic impacts as a result of the build Alternatives. As a result, the focus of this analysis was to identify those resources whose direct access might be adversely impacted by a build Alternative.

Assessment of Visual Impacts

The assessment of visual quality impacts was considered in the Visual Impacts Assessment Technical Report. In general, an adverse impact was considered to occur if views to or from resources were previously unobstructed views of surrounding areas, those views were considered important and those views would include views of the features of the SOCTIIP build Alternatives. For example, a park or recreational facility in an urbanized area in close proximity

to a highway or road facility would not be considered to experience substantial adverse visual impacts due to construction of the SOCTIIP Alternative. Additionally, sound walls would not be considered an adverse impact on recreation resources because it would simply be a wall at the edge of the road or resource. Conversely, a designated nature area that includes unimpaired views of the surrounding undeveloped areas could be adversely impacted, depending on the nature and degree to which views were affected by topography, elevation and other factors.

4.25.2.3 Section 4(f) Evaluation

Analysis of the potential impacts of the SOCTIIP Alternatives on publicly owned parks, recreation resources and wildlife refuges, consistent with the requirements of Section 4(f) of the Department of Transportation Act, is provided in Appendix H. A similar Section 4(f)-like evaluation for privately owned recreation resources, consistent with the Settlement Agreement, is provided in Appendix I.

4.25.3 IMPACTS RELATED TO RECREATION RESOURCES

This Section summarizes the potential adverse impacts of the SOCTIIP Alternatives related to the temporary use and permanent acquisition of property, air quality (short term), noise (short term and long term), traffic and visual on recreation resources in the study area. For each Alternative, the potentially affected resources and impacts on those resources are identified.

4.25.3.1 Construction Impacts Related to Recreation Resources

FEC-W- Alternative

As shown in Table 4.25-10 and Figure 4.25-10, the FEC-W-Initial will result in the temporary occupancy of property from the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the construction disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-11, the use of property from these recreation resources will result in adverse effects on amenities at the existing resources (Conservancy and SOSB) through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park because no information about this planned resource is available at this time. Based on the temporary occupancy of property at these resources, the FEC-W-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-10, the FEC-W-Ultimate will result in the temporary occupancy of property from the same resources as the FEC-W-Initial, although the amount of property affected is generally larger.

As shown on Table 4.25-12, adverse construction noise impacts of the FEC-W Alternative will occur at Tesoro High School, Talega Community Park, Pacific Golf Club, Vista Bahia Stadium Park, San Clemente Municipal Golf Course, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach and SOSB Surfer Beach Subunit 3.

The FEC-W Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-12 with the exception of SOSB Cristianitos Subunit 1. There may be temporary access impacts during construction of this Alternative.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The FEC-W Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

FEC-M Alternative

As shown in Table 4.25-13 and Figure 4.25-11, the FEC-M-Initial will result in the temporary occupancy of property from the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the construction disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-14, the use of property from the existing recreation resources (Conservancy and SOSB) will result in adverse effects on amenities at these resources through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park because no information about this planned resource is available at this time. Based on the temporary occupancy of property at these resources, the FEC-M-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-13, the FEC-M-Ultimate will result in the temporary occupancy of property from the same resources as the FEC-M-Initial, although the amount of property affected is generally larger.

As shown on Table 4.25-15, adverse construction noise impacts of the FEC-M Alternative will occur at Tesoro High School, Talega Community Park, Pacific Golf Club, Vista Bahia Stadium Park, San Clemente Municipal Golf Course, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach and SOSB Surfer Beach Subunit 3.

The FEC-M Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-15 with the exception of SOSB Cristianitos Subunit 1. There may be temporary access impacts during construction of this Alternative.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The FEC-M Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

CC Alternative

As shown in Table 4.25-16 and Figure 4.25-12, the CC-Initial will result in the temporary use of property from proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park, San Juan Capistrano Open Space and Trails, Ole Hanson Elementary School Sports Fields, San Clemente High School Sports Fields and San Clemente State Beach. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-17, the use of property from the existing recreation resources will result in adverse effects on amenities at these resources through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park because no information about these planned resources is available at this time. Based on the temporary use of property at these resources, the CC-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-16, the CC-Ultimate will result in the temporary use of property from the same resources as the CC-Initial, although the amount of property affected is generally greater.

As shown on Table 4.25-18, adverse construction noise impacts of the CC Alternative will occur at the Tesoro High School Sports Fields, Talega Golf Course, Vista Del Mar Elementary and Middle School Sports Fields, San Clemente High School Sports Fields, Ole Hanson Elementary School Sports Fields, Bonito Canyon Park, San Clemente Municipal Golf Course, Verde Park, San Luis Rey Park, San Clemente State Beach, Concordia Elementary School Play Fields and SOSB Cristianitos Subunit 1.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the proposed San Juan Creek Regional Park, San Juan Capistrano Open Space and Trails, proposed Prima Deshecha Regional Park, proposed Our Lady of Fatima, Park Ole Hanson Elementary School Sports Fields, San Clemente High School Sports Fields, San Clemente State Beach and SOSB Cristianitos Subunit

1. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The CC Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

CC-ALPV Alternative

As shown in Table 4.25-19 and Figure 4.25-13, the CC-ALPV-Initial will result in the temporary occupancy of property from proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park and San Juan Capistrano Open Space and Trails. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-20, the use of property from the existing San Juan Capistrano Open Space and Trails will result in adverse effects on amenities at this resource through the removal of open space. It is not known what amenities will would potentially be provided at the proposed San Juan Creek and Prima Deshecha Regional Parks because no information about these planned resources is available at this time. Based on temporary occupancy of property at these resources, the CC-ALPV-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-19, the CC-ALPV-Ultimate will result in the temporary occupancy and/or permanent acquisition of property from the same resources as the CC-ALPV-Initial, although the amount of property affected is generally greater.

As shown on Table 4.25-21, adverse construction noise impacts of the CC-ALPV Alternative will would occur at the Tesoro High School Sports Fields, Talega Golf Course and Vista Del Mar Elementary and Middle School Sports Fields.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the proposed San Juan Creek Regional Park, San Juan Capistrano Open Space and Trails and proposed Prima Deshecha Regional Park. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The CC-ALPV Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

A7C-ALPV Alternative

As shown in Table 4.25-22 and Figure 4.25-14, the A7C-ALPV-Initial will result in the temporary occupancy of property from proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park and existing Talega Golf Course. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only

during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-23, the use of property from these recreation resources will result in adverse effects on amenities at Talega Golf Course from the removal of open space and recreation improvements and facilities. It is not known what amenities will would potentially be provided at the proposed San Juan Creek and Prima Deshecha Regional Parks because no information about these planned resources is available at this time. Based on the temporary occupancy of property at these resources, the A7C-ALPV-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-22, the A7C-ALPV-Ultimate will result in the temporary occupancy of property from the same resources as the A7C-ALPV-Initial although the amount of property affected is generally greater.

As shown on Table 4.25-24, adverse construction noise impacts of the A7C-ALPV Alternative will would occur at the Tesoro High School Sports Fields, Talega Golf Course, Vista Del Mar Elementary and Middle School Sports Fields and Talega Swim and Athletic Club.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park, Talega Golf Course and Ladera Ranch Open Space. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The A7C Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

A7C-FEC-M Alternative

As shown in Table 4.25-25 and Figure 4.25-15, the A7C-FEC-M-Initial will result in the temporary occupancy of property from the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-26, the use of property from these recreation resources will result in adverse effects on amenities at the existing resources (Conservancy and SOSB) through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park because no information about the planned amenities at this proposed Park is available at this time. Based on the temporary occupancy of property at these resources, the A7C-FEC-M-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-25, the A7C-FEC-M-Ultimate will result in the temporary occupancy of property from the same resources as the A7C-FEC-M-Initial, although the amount of property affected is generally larger.

As shown on Table 4.25-27, adverse construction noise impacts of the A7C-FEC-M Alternative will occur at Tesoro High School, Talega Community Park, Pacific Golf Club, Vista Bahia Stadium Park, San Clemente Municipal Golf Course, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach and SOSB Surfer Beach Subunit 3.

The A7C-FEC-M- Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown in Table 4.25-27 with the exception of SOSB Cristianitos Subunit 1. There may be temporary access impacts during construction of this Alternative.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the proposed San Juan Creek Regional Park, Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1 and SOSB Trestles Subunit 2. Those impacts will be substantially mitigated based on mitigation measures provided in the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The A7C-FEC-M Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

AIO Alternative

As shown in Table 4.25-28 and Figure 4.25-16, the AIO Alternative will result in the temporary occupancy of property from Las Flores Elementary School Sports Fields, Ladera Ranch Open Space, proposed Ladera Ranch Open Space, proposed San Juan Creek Regional Park, San Juan Capistrano Open Space and Trails and proposed Prima Deshecha Regional Park. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build Alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-29, the use of property from these recreation resources will result in adverse effects on amenities at these resources from the removal of open space and recreation improvements and facilities. Based on the types of amenities removed by the temporary occupancy of property at these resources, the AIO Alternative will result in an adverse impact on these resources.

As shown on Table 4.25-30, adverse construction noise impacts of the AIO Alternative will occur at the Las Flores Elementary School Sports Fields and Pacific Golf Club.

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including the Las Flores Elementary School Sports Fields, Ladera Ranch Open Space, proposed Ladera Ranch Open Space, proposed San Juan Creek Regional Park, San Juan Capistrano Open Space and Trails, proposed San Juan Hills High School Sports Fields, proposed Prima Deshecha Regional Park and O'Neill Regional Park. Those impacts will be substantially mitigated based on mitigation measures provided in

the Section 4.7. However, these resources could experience substantial adverse short term air quality impacts, even with mitigation, during construction. The AIO Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

I-5 Alternative

As shown in Table 4.25-31 and Figure 4.25-17, the I-5 Alternative will result in the temporary occupancy of property from Mission Viejo High School Sports Fields. Areas identified as temporary occupancy are in addition to the areas identified for permanent acquisition. Temporary occupancy defines areas that will be within the disturbance limits and which will be used only during construction of a build alternative. After the completion of construction, the temporary occupancy areas will be restored to their pre-project conditions. As shown in Table 4.25-32, the use of property from this recreation resource will result in adverse effects on amenities at this resource. Based on the types of amenities removed by the temporary occupancy of property at this resource, the I-5 Alternative will result in an adverse impact on this resource.

Also shown on Table 4.25-33, adverse construction noise impacts of the I-5 Alternative will occur at the following resources:

- Cavanaugh Gowdy Park
- Clarington Park
- Sycamore Park
- La Tierra Elementary School Sports Fields
- Aegean Park
- Doria Park
- Mackenzie Park
- Knotty Pine Park
- La Paz Middle School Sports Fields
- Mission Viejo High School Sports Fields
- Mission Viejo Golf Course
- Madrid Fore Park
- Moulton Ranch Park
- Grenada Park
- Cabot Park
- Capistrano Valley High School Sports
- Fields
- Rancho Capistrano Recreation Fields
- Serra Park
- El Camino Real Park
- Marbella Golf and Country Club
- Stone Field Park and Soccer Field
- Serra High School Sports Fields
- San Juan Elementary School Sports Fields
- Buccheim Fields
- Historic Town Center Archaeological Park
- San Juan Hills Country Club
- Descanso Veterans Park
- Creekside Park
- Sunset Park
- Mira Costa Park
- Shorecliffs Golf Course
- Park at Calle Juarez and Calle Guadalajara
- San Gorgonio Park
- Shorecliffs Middle School Sports Fields
- San Clemente High School Sports Fields
- Ole Hanson Elementary School Sports Fields
- Verde Park
- Bonito Canyon Park
- San Clemente Municipal Golf Course
- San Clemente State Beach
- San Luis Rey Park
- Concordia Elementary School Sports Fields
- SOSB Cristianitos Subunit 1
- SOSB Trestles Subunit 2

During construction of this Alternative, some short term dust and construction emissions may result in temporary adverse impacts on adjacent uses, including 28 recreation resources as shown in Table 4.25-33. Those impacts will be substantially mitigated based on mitigation measures provided in the Air Quality Technical Report. However, these resources could experience

substantial adverse short term air quality impacts, even with mitigation, during construction. The I-5 Alternative could result in short term adverse air quality impacts during construction based on the findings of the Air Quality Technical Report.

No Action Alternative - OCP-2000

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any additional SOCTIIP related transportation improvements. Therefore, the No Action Alternative-OCP-2000 will not result in adverse construction impacts to any recreation resources.

No Action Alternative - RMV

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any SOCTIIP related transportation additional improvements. Therefore, the No Action Alternative-RMV will not result in adverse construction impacts to any recreation resources.

4.25.3.2 Long Term Impacts Related to Recreation Resources

FEC-W Alternative

As shown in Table 4.25-10 and Figure 4.25-10, the FEC-W-Initial will result in the permanent acquisition of property from the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. As shown in Table 4.25-11, the use of property from these recreation resources will result in adverse effects on amenities at these resources through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed Park because no information about these planned resources is available at this time. Based on the types of amenities removed by the permanent acquisition of property at these resources, the FEC-W-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-10, the FEC-W-Ultimate will result in the permanent acquisition of property from the same resources as the FEC-W-Initial, although the amount of property affected is generally larger.

As shown in Figure 4.25-12 and Table 4.25-13, the FEC-W Alternative will fragment SOSB Cristianitos Subunit 1, Proposed San Juan Creek Regional Park and Donna O'Neill Land Conservancy. The FEC-W Alternative will divide SOSB Subunit 1, resulting in a trail crossing from the City of San Clemente onto SOSB Subunit 1 being on the west side of the corridor and San Mateo Campground being on the east side. The corridor disturbance and right-of-way limits will result in the removal of the RV tank pumping station and several fire roads in the north part of SOSB Cristianitos Subunit 1. The design of the FEC-W Alternative includes structures (wildlife crossings and utility maintenance access roads) in SOSB Subunit 1 which would allow park users to cross between the east and west sides of the park under the corridor. These fragmentation impacts will be adverse on SOSB Subunit 1.

The fragmentation impact on proposed San Juan Creek Regional Park will also be adverse, although, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The TCA would work with the park development to minimize future impacts. The design of the FEC-W Alternative includes one structure over San Juan Creek proposed San Juan Creek Regional Park which could allow park users to cross between the east and west sides of this park.

This Alternative will divide the Donna O'Neill Land Conservancy, with parts of the Conservancy on the east and west sides of the corridor. The corridor disturbance and right-of-way limits will result in the removal of open space and trails in the north part of the Conservancy. The design of this Alternative includes structures over Cristianitos Road and another private road that will allow Conservancy users to cross between the east and west sides of the corridor.

In summary, the fragmentation impacts of the FEC-W Alternative will be adverse on these three recreation resources.

As shown on Table 4.25-12, adverse noise impacts due to operation of the FEC-W Alternative will occur at Tesoro High School, SOSB Cristianitos Subunit 1 and MCB Camp Pendleton San Onofre Recreation Beach. Adverse operational noise impacts will occur at SOSB Surfer Beach Subunit 3 only during operation of the FEC-W Ultimate configuration.

The FEC-W Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-12 with the exception of SOSB Cristianitos Subunit 1. Permanent access is provided in the design and right-of-way for the FEC-W Alternative.

Operation of the FEC-W Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-12, the FEC-W Alternative will result in adverse changes in views from Donna O'Neill Land Conservancy and SOSB Cristianitos Subunit 1. The FEC-W Alternative will result in adverse changes in views from the following proposed recreation resource if this resource becomes operational during the construction of this Alternative: San Juan Creek Regional Park. These changes in views will be adverse.

This Alternative will result in changes in views from Tesoro High School Sports Fields, General Thomas F. Riley Wilderness Park, Caspers Regional Park, Talega Community Park, Pacific Golf Club, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach and SOSB Surfer Beach Subunit 3. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

FEC-M Alternative

As shown in Table 4.25-13 and Figure 4.25-11, the FEC-M-Initial will result in the permanent acquisition of property from the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. As shown in Table 4.25-14, the use of property from the existing recreation resources (Conservancy and SOSB) will result in adverse effects on amenities at these resources through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park because no information about this planned resource is available at this time. Because amenities will be removed by the permanent acquisition of property at these resources, the FEC-M-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-13, the FEC-M-Ultimate will result in the permanent acquisition of property from the same resources as the FEC-M-Initial, although the amount of property affected is generally larger.

As shown in Figure 4.25-11 and Table 4.25-13, the FEC-M Alternative will fragment SOSB Cristianitos Subunit 1, Proposed San Juan Creek Regional Park and Donna O'Neill Land Conservancy. The FEC-M Alternative will divide SOSB Subunit 1. The FEC-M Alternative alignment through SOSB Cristianitos Subunit 1 is the same as the FEC-W Alternative alignment through this resource. Therefore, the FEC-M Alternative will divide SOSB Cristianitos Subunit 1 the same as the FEC-W Alternative. Refer to Section 4.25.3.2 for a discussion of the fragmentation of SOSB Cristianitos Subunit 1 under the FEC-W Alternative.

The fragmentation impact on Proposed San Juan Creek Regional Park will also be adverse, although, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the FEC-M Alternative includes one structure over San Juan Creek within Proposed San Juan Creek Regional Park which could allow park users to cross between the east and west sides of the park.

This Alternative will divide the Donna O'Neill Land Conservancy, with parts of the Conservancy on the east and west sides of the corridor. The corridor disturbance and right-of-way limits will result in the removal of open space and trails in the north part of the Conservancy. The design of this Alternative includes structures over Cristianitos Road and another private road that will allow Conservancy users to cross between the east and west sides of the corridor.

In summary, the fragmentation impacts of the FEC-M Alternative will be adverse on these three recreation resources.

As shown on Table 4.25-15, adverse noise impacts due to operation of the FEC-M Alternative will occur at Tesoro High School, SOSB Cristianitos Subunit 1 and MCB Camp Pendleton San Onofre Recreation Beach. Adverse operational noise impacts will occur at SOSB Surfer Beach Subunit 3 only during operation of the FEC-M Ultimate configuration.

The FEC-M Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 5.18-3 with the exception of SOSB Cristianitos Subunit 1. Permanent access is provided in the design and right-of-way for the FEC-M Alternative.

Operation of the FEC-M Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-15, the FEC-M Alternative will result in adverse changes in views from Donna O'Neill Land Conservancy and SOSB Cristianitos Subunit 1. The FEC-M Alternative will result in adverse changes in views from the following proposed recreation resource if this resource becomes operational during the construction of this Alternative: San Juan Creek Regional Park. These changes in views will be adverse.

This Alternative will result in changes in views from Tesoro High School Sports Fields, General Thomas F. Riley Wilderness Park, Caspers Regional Park, Talega Community Park, Pacific Golf Club, SOSB Trestles Subunit 2, MCB Camp Pendleton San Onofre Recreation Beach and SOSB Surfer Beach Subunit 3. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

CC Alternative

As shown in Table 4.25-16 and Figure 4.25-12, the CC-Initial will result in the permanent acquisition of property from Ole Hanson Elementary School Sports Fields, San Clemente High School Sports Fields, San Juan Capistrano Open Space and Trails, San Clemente State Beach, SOSB Cristianitos Subunit 1, proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park. The permanent acquisition of property on SOSB Cristianitos Subunit 1 under this Alternative is for an EDB southeast of Cristiantos Road and east of I-5. As shown in Table 4.25-17, the use of property from these recreation resources (Ole Hanson School Sports Fields, San Clemente High School Sports Fields, San Juan Capistrano Open Space and Trails, San Clemente State Beach and SOSB) will result in adverse effects on amenities at these resources through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek and Prima Deshecha Regional Parks because no information about these planned resources is available at this time. Because amenities will be removed by the permanent acquisition of property at these resources, the CC-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-16, the CC-Ultimate will result in the permanent acquisition of property from the same resources as the CC-Initial, although the amount of property affected is generally greater.

As shown in Figure 4.25-12 and Table 4.25-16, the CC Alternative will fragment proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park. The CC Alternative will divide proposed San Juan Creek Regional Park; however, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact

in detail. The design of the CC Alternative includes one structure over San Juan Creek within proposed San Juan Creek Regional Park which could allow park users to cross between the east and west sides of this proposed park.

The fragmentation impact on proposed Prima Deshecha Regional Park will also be adverse, although, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the CC Alternative does not include any structures within proposed Prima Deshecha Regional Park which could allow park users to cross between the east and west sides of this proposed park.

As shown on Table 4.25-18, adverse noise impacts due to operation of the CC Alternative will occur at Tesoro High School Sports Fields, San Clemente High School Sports Fields and Vista Del Mar Elementary and Middle School Sports Fields and SOSB Cristianitos Subunit 1.

The CC Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-18.

Operation of the CC Alternative will not result in substantial adverse long term local air quality impacts, based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-18, the CC Alternative will result in adverse changes in views from the following proposed recreation resources if these resources become operational during the construction of this Alternative: San Juan Creek Regional Park, Prima Deshecha Regional Park and Talega Community Park West.

This Alternative will result in changes in views from the Tesoro High School Sports Fields, General Thomas F. Riley Wilderness Park, Ladera Ranch Open Space, San Juan Capistrano Open Space and Trails, Vista Del Mar Elementary and Middle School Sports Fields, Talega Golf Course, Shorecliffs Middle School Sports Fields, proposed Marblehead Sports Park, San Clemente High School Sports Fields, Ole Hanson Elementary School Sports Fields, proposed Our Lady of Fatima Park, San Clemente Municipal Golf Course, San Luis Rey Park, San Clemente State Beach, proposed South San Clemente Neighborhood Park (west) and SOSB Cristianitos Subunit 1. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

CC-ALPV Alternative

As shown in Table 4.25-19 and Figure 4.25-13, the CC-ALPV-Initial will result in the permanent acquisition of property from proposed San Juan Creek Regional Park, San Juan Capistrano Open Space and Trails and proposed Prima Deshecha Regional Park. As shown in Table 4.25-20, the use of property from these recreation resources will result in adverse effects on amenities at these resources through the removal of open space. It is not known what amenities will potentially be provided at the proposed San Juan Creek and Prima Deshecha Regional Parks because no information about these planned resources is available at this time. Because amenities will be

removed by the permanent acquisition of property at these resources, the CC-ALPV-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-19, the CC-ALPV-Ultimate will result in the permanent acquisition of property from the same resources as the CC-ALPV-Initial, although the amount of property affected is generally greater.

As shown in Figure 4.25-13 and Table 4.25-19, the CC-ALPV Alternative will fragment proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park. The CC-ALPV Alternative alignment through these proposed Parks is similar to the CC Alternative alignment through these resources. Therefore, the CC-ALPV Alternative will divide these resources the same as the CC Alternative. Section 4.25.3.2 provides a discussion of the fragmentation of proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park under the CC Alternative.

As shown on Table 4.25-21, adverse noise impacts due to operation of the CC-ALPV Alternative will would occur at Tesoro High School Sports Fields.

The CC-ALPV Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-21.

Operation of the CC-ALPV Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-21, the CC-ALPV Alternative will result in adverse changes in views from the following proposed recreation resources if these resources become operational during the construction of this Alternative: proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park and Talega Community Park West.

This Alternative will result in changes in views from the Tesoro High School Sports Fields, General Thomas F. Riley Wilderness Park, Ladera Ranch Open Space, San Juan Capistrano Open Space and Trails, Vista Del Mar Elementary and Middle School Sports Fields and Talega Golf Course. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

A7C-ALPV Alternative

As shown in Table 4.25-22 and Figure 4.25-14, the A7C-ALPV-Initial will result in the permanent acquisition of property from proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park and existing Talega Golf Course. As shown in Table 4.25-23, the use of property from Talega Golf Course will result in adverse effects on amenities at this resource from the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek and Prima Deshecha Regional Parks because no information about these planned resources is available at this time.

Because amenities will be removed by the permanent acquisition of property at these resources, the A7C-ALPV-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-22, the A7C-ALPV-Ultimate will result in the permanent acquisition of property from the same resources as the A7C-ALPV-Initial although the amount of property affected is generally greater.

As shown in Figure 4.25-14 and Table 4.25-22, the A7C-ALPV Alternative will fragment Talega Golf Course, proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park. The A7C-ALPV Alternative will divide Talega Golf Course, resulting in tee boxes and putting green located on the north and south sides of the corridor. The corridor right-of-way limits will result in the permanent removal of the clubhouse, a water feature, golf cart path, fairways, putting greens and tee boxes. The design of the A7C-ALPV Alternative does not include any structures within Talega Golf Course which would allow Golf Course users to cross between the east and west sides of the Golf Course across the corridor. It is anticipated that Talega Golf Course could not operate under the impacts of this Alternative. These impacts will be adverse on Talega Golf Course.

The A7C-ALPV Alternative will also divide proposed San Juan Creek Regional Park; however, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the A7C-ALPV Alternative includes one structure over San Juan Creek proposed San Juan Creek Regional Park which could allow park users to cross between the east and west sides of this proposed park.

The fragmentation impact on proposed Prima Deshecha Regional Park will also be adverse, although, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the A7C-ALPV Alternative does not include any structures proposed Prima Deshecha Regional Park which could allow park users to cross between the east and west sides of this proposed park.

As shown on Table 4.25-24, adverse noise impacts due to operation of the A7C-ALPV Alternative will would occur at Tesoro High School Sports Fields and Talega Golf Course.

The A7C-ALPV Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.46-24.

Operation of the A7C-ALPV Alternative will not result in substantial adverse long term local air quality impacts, based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-24, the A7C-ALPV Alternative will result in adverse changes in views from the Talega Golf Course. The A7C-ALPV Alternative will result in adverse changes in views from the following proposed recreation resources if these resources become operational during the construction of this Alternative: San Juan Creek Regional Park, Prima Deshecha Regional Park and Talega Community Park West.

This Alternative will result in changes in views from the Tesoro High School Sports Fields, Vista Del Mar Elementary and Middle School Sports Fields, General Thomas F. Riley Wilderness Park and Ladera Ranch Open Space. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

A7C-FEC-M Alternative

As shown in Table 4.25-25 and Figure 4.25-15, the A7C-FEC-M-Initial will result in the permanent acquisition of property from the Donna O'Neill Land Conservancy, SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 and the proposed San Juan Creek Regional Park. As shown in Table 4.25-26, the use of property from the existing recreation resources (Conservancy and SOSB) will result in adverse effects on amenities at these resources through the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park because no information about this planned resource is available at this time. Because amenities will be removed by the permanent acquisition of property at these resources, the A7C-FEC-M-Initial will result in an adverse impact on these resources.

As shown in Table 4.25-25, the A7C-FEC-M-Ultimate will result in the permanent acquisition of property from the same resources as the A7C-FEC-M-Initial, although the amount of property affected is generally larger.

As shown in Figure 4.25-15 and Table 4.25-25, the A7C-FEC-M Alternative will fragment SOSB Cristianitos Subunit 1, Proposed San Juan Creek Regional Park and Donna O'Neill Land Conservancy. The A7C-FEC-M Alternative will divide SOSB Subunit 1. The A7C-FEC-M Alternative alignment through SOSB Cristianitos Subunit 1 is similar to the FEC-W Alternative alignment through this resource. Therefore, the A7C-FEC-M Alternative will divide SOSB Cristianitos Subunit 1 the same as the FEC-W Alternative. Refer to Section 4.25.3.2 for a discussion of the fragmentation of SOSB Cristianitos Subunit 1 under the FEC-W Alternative.

The fragmentation impact on Proposed San Juan Creek Regional Park will also be adverse, although, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the A7C-FEC-M Alternative includes one structure over San Juan Creek within Proposed San Juan Creek Regional Park which could allow park users to cross between the east and west sides of the park.

This Alternative will divide the Donna O'Neill Land Conservancy, with parts of the Conservancy on the east and west sides of the corridor. The corridor disturbance and right-of-way limits will result in the removal of open space and trails in the north part of the Conservancy. The design of this Alternative includes structures over Cristianitos Road and another private road that will allow Conservancy users to cross between the east and west sides of the corridor.

In summary, the fragmentation impacts of the A7C-FEC-M Alternative will be adverse on these three recreation resources.

As shown on Table 4.25-27, adverse noise impacts due to operation of the A7C-FEC-M Alternative will occur at Tesoro High School, SOSB Cristianitos Subunit 1 and MCB Camp Pendleton San Onofre Recreation Beach. Adverse operational noise impacts will occur at SOSB Surfer Beach Subunit 3 only during operation of the A7C-FEC-M Ultimate configuration.

The A7C-FEC-M Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-27 with the exception of SOSB Cristianitos Subunit 1. Permanent access is provided in the design and right-of-way for the A7C-FEC-M Alternative.

Operation of the A7C-FEC-M Alternative will not result in substantial adverse long term local air quality impacts based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-27, the A7C-FEC-M Alternative will result in adverse changes in views from Donna O'Neill Land Conservancy and SOSB Cristianitos Subunit 1. The A7C-FEC-M Alternative will result in adverse changes in views from the following proposed recreation resources if these resources become operational during the construction of this Alternative: San Juan Creek Regional Park. These changes in views will be adverse.

This Alternative will result in changes in views from Tesoro High School Sports Fields, General Thomas F. Riley Wilderness Park, Caspers Regional Park, Talega Community Park, Pacific Golf Club, SOSB Trestles Subunit 2 and MCB Camp Pendleton Green Beach and San Onofre Recreation Beach. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

AIO Alternative

As shown in Table 4.25-28 and Figure 4.25-16, the AIO Alternative will result in the permanent acquisition of property from the existing Las Flores Elementary School Sports Fields, San Juan Capistrano Open Space and Trails and Ladera Ranch Open Space and the proposed Ladera Ranch Open Space, proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park and proposed San Juan Hills High School. As shown in Table 4.25-29, the use of property from the existing recreation resources (Las Flores Elementary School Sports Fields and Ladera Ranch Open Space) will result in adverse effects on amenities at these resources from the removal of open space and recreation improvements and facilities. It is not known what amenities will potentially be provided at the proposed San Juan Creek Regional Park, proposed Prima Deshecha Regional Park and proposed Ladera Ranch Open Space because no information about these planned resources is available at his time. Because amenities will be removed by the permanent acquisition of property at these resources, the AIO Alternative will result in an adverse impact on these resources. However, use of the Ladera Ranch Open Space for this Alternative is not consistent with the terms of Conservation Easement or its amendments.

As shown in Figure 4.25-16 and Table 4.25-28, the AIO Alternative will cross proposed Ladera Ranch Open Space, proposed San Juan Creek Regional Park and proposed Prima Deshecha

Regional Park. The AIO Alternative will cross proposed Ladera Ranch Open Space, with open space on the west and east side of Antonio Parkway. The design of the AIO Alternative does not include any structures proposed Ladera Ranch Open Space which would allow users to cross between the east and west sides of this Open Space across the road. Because this open space is already fragmented by existing Antonio Parkway, the AIO Alternative would not adversely fragment this open space.

The AIO Alternative generally assumes the alignment of Antonio Parkway/Avenida La Pata as shown in the MPAH, which itself bisect the proposed San Juan Creek Regional Park. Therefore, the AIO Alternative will bisect the proposed San Juan Creek Regional Park in a similar manner. Because the Park is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the AIO Alternatives includes one structure over San Juan Creek proposed San Juan Creek Regional Park which could allow park users to cross between the east and west sides of the park. Because this proposed regional park is already fragmented by Antonio Parkway, the AIO Alternative would not adversely fragment this proposed park.

The fragmentation impact on proposed Prima Deshecha Regional Park will also be adverse, although, because it is proposed and no information on potential amenities or facilities is available, it is not possible to assess this impact in detail. The design of the AIO Alternative does not include any structures proposed Prima Deshecha Regional Park which could allow park users to cross between the east and west sides of the park.

As shown on Table 4.25-30, no adverse noise impacts due to operation of the AIO Alternative will occur at any recreation resource in the study area.

The AIO Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-30.

Operation of the AIO Alternative will not result in substantial adverse long term local air quality impacts, based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-30, the AIO Alternative will result in changes in views from the Las Flores Elementary School Sports Fields, Ladera Ranch Open Space, proposed Ladera Ranch Open Space, proposed San Juan Creek Regional Park, San Juan Capistrano Open Space and Trails, proposed Prima Deshecha Regional Park, Pacific Golf Club, proposed Talega Community Park West, Vista Del Mar Elementary and Middle School Sports Fields and Talega Golf Course. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

I-5 Alternative

As shown in Table 4.25-31 and Figure 4.25-17, the I-5 Alternative will result in the permanent acquisition of property from 13 recreation resources. The permanent acquisition of property on SOSB Cristianitos Subunit 1 under this alternative is for an EDB southeast of Cristianitos Road

and east of I-5. As shown in Table 4.25-32, the use of property from these recreation resources will result in adverse effects on amenities at these resources. Based on the types of amenities removed by the permanent acquisition of property at these resources, the I-5 Alternative will result in an adverse impact on these resources.

As shown in Figure 4.25-17 and Table 4.25-31, the I-5 Alternative will not fragment any existing or proposed recreation resources.

The I-5 Alternative will not adversely affect access to and from recreation resources in the vicinity of the alignment as shown on Table 4.25-33.

As shown on Table 4.25-33, adverse noise impacts due to operation of the I-5 Alternative will occur at Aegean Park, Mission Viejo High School Sports Fields, Mission Viejo Golf Course, Capistrano Valley High School Sports Fields, Rancho Capistrano Recreation Fields, Serra Park, San Juan Elementary School Sports Fields, Buccheim Fields, Sunset Park, San Clemente High School Sports Fields, Ole Hanson Elementary School Sports Fields and Concordia Elementary School Sports Fields.

Operation of the I-5 Alternative will not result in substantial adverse long term local air quality impacts, based on the findings of the Air Quality Technical Report.

As shown in Table 4.25-33, the I-5 Alternative will result in changes in views for the resources listed below. The change in the views from these resources is not adverse because the views from these resources will not be substantially changed or these resources are not considered to be sensitive to changes in the viewshed.

- Cavanaugh Gowdy Park
- Sycamore Park
- Aegean Park
- Linda Vista Elementary School Sports Fields
- Moulton Ranch Park
- Cabot Park
- Proposed Northwest Open Space
- Serra Park
- Marbella Golf and Country Club
- Buccheim Fields
- Descanso Veterans Park
- San Juan Hills Country Club
- proposed Via Canon Park
- Sunset Park
- Shorecliffs Golf Course
- Shorecliffs Middle School Sports Fields
- Ole Hanson Elementary School Sports Fields
- San Clemente Municipal Golf Course
- San Luis Rey Park
- SOSB Cristianitos Subunit 1
- SOSB Trestles Subunit 2
- La Tierra Elementary School
- Mission Viejo High School Sports Fields
- Mission Viejo Golf Course
- Granada Park
- Capistrano Valley High School Sports Fields
- Rancho Capistrano Recreation Fields (Schuller Ministries)
- San Juan Elementary School Sports Fields
- San Juan Capistrano Open Space and Trails
- San Gorgonio Park
- proposed Marblehead Sports Park
- San Clemente High School Sports Fields
- proposed Our Lady of Fatima Park
- San Clemente State Beach
- proposed South San Clemente Neighborhood Park (west)
- Creekside Park

No Action Alternative - OCP-2000

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any additional SOCTIIP improvements. Therefore, the No Action Alternative-OCP-2000 will not result in SOCTIIP related adverse long term impacts to any recreation resources.

No Action Alternative - RMV

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any additional SOCTIIP improvements. Therefore, the No Action Alternative-RMV will not result in SOCTIIP related adverse long term impacts to any recreation resources.

4.25.3.3 Summary of Impacts Related to Recreation Resources

The A7C-ALPV and CC-ALPV will result in the least number of impacts to recreation resources. The A7C-ALPV Alternative will directly impact the proposed San Juan Creek Regional Park and the proposed Prima Deshecha Regional Park. This Alternative will indirectly impact four existing recreation resources and four proposed recreation resources.

The CC-ALPV Alternative will directly impact the San Juan Capistrano Open Space and Trails, proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park. This Alternative will indirectly impact three existing recreation resources and four proposed recreation resources.

The AIO Alternative will directly impact the San Juan Capistrano Open Space and Trails and the proposed San Juan Hills High School Sports Fields. The AIO Alternative will indirectly impact six existing recreation resources and five proposed recreation resources.

The FEC-W, FEC-M and A7C-FEC-M Alternatives will result in similar direct and indirect impacts to recreation resources. These Alternatives will directly impact SOSB Cristianitos Subunit 1, SOSB Trestles Subunit 2 proposed San Juan Creek Regional Park. These Alternatives will indirectly impact nine existing and two proposed recreation resources. In addition, the FEC-W and A7C-FEC-M Alternatives will indirectly impact one other proposed recreation resource.

The CC Alternative will directly impact the San Clemente State Beach, Ole Hanson Elementary School Sports Fields, San Clemente High School Sports Fields, SOSB Cristianitos Subunit 1, San Juan Capistrano Open Space and Trails, proposed San Juan Creek Regional Park and proposed Prima Deshecha Regional Park. This Alternative will indirectly impact eleven existing recreation resources and seven proposed recreation resources.

The I-5 Alternative will result in the largest number of impacts to recreation resources. The I-5 Alternative will directly impact Cavanaugh Gowdy Park, Aegean Park, Mission Viejo High School Sports Fields, San Gorgonio Park, Ole Hanson Elementary School Sports Fields, San Clemente High School Sports Fields, SOSB Cristianitos Subunit 1, Buccheim Fields, Serra Park

and proposed Northwest Open Space. The I-5 Alternative will indirectly impact forty-nine existing and five proposed recreation resources.

The No Action Alternatives do not assume any SOCTIIP related transportation improvements and therefore will not result in direct or indirect impacts to existing or proposed recreation resources.

Impacts related to recreation resources are summarized in Tables 4.25-10 to 4.25-33.

4.25.4 MITIGATION MEASURES RELATED TO RECREATION RESOURCES

Mitigation measures were provided in the Mitigation Monitoring Program (MMP) for Final Environmental Impact Report No. 3 (EIR No. 3) for the Foothill Transportation Corridor – Oso Parkway to Interstate 5, to minimize the impacts to recreation resources identified for the alignments analyzed in that EIR. All the mitigation measures in the MMP for EIR No. 3 were reviewed and have been incorporated, as applicable, in the mitigation measures for the SOCTIIP alternatives. Table 4.25-34 lists the mitigation measures from the MMP in EIR No. 3 and provides the proposed status for each measure. If the measure has been incorporated into a SOCTIIP mitigation measure, the new mitigation measure number is provided. If a measure is proposed to be deleted, the reason for deleting the measure is provided.

The following mitigation measures were developed to avoid or minimize as much as possible the impacts of the SOCTIIP build Alternatives related to recreation resources. .

The TCA or other agencies implementing a SOCTIIP Alternative (because the TCA will not be the implementing agency for the non-corridor alternatives) will comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property within the right-of-way necessary for the proposed project. The provisions of this Act, as well as mitigation measures related to temporary use and permanent acquisition of property, are addressed in detail in Section 4.4 (Affected Environment, Impacts and Mitigation Related to Socioeconomics and Environmental Justice).

In addition, Sections 4.6 (Affected Environment, Impacts and Mitigation Related to Noise) and 4.18 (Affected Environment, Impacts and Mitigation Related to Aesthetics) include mitigation to address noise and visual impacts along the alignments of the build Alternatives. Those mitigation measures would mitigate adverse impacts of the build Alternatives related to noise and visual impacts. As described in the Section 4.6, short term noise impacts may not be fully mitigated to within the applicable local jurisdictions' noise standards for construction. However, long term noise impacts associated with operation of the build Alternatives are anticipated to be mitigated to within the applicable federal and local standards. As documented in the Section 4.18, not all the adverse visual impacts associated with the build Alternatives, including impacts on recreation resources, can be fully mitigated. Mitigation measures in Sections 4.6 and 4.18 would substantially mitigate potential adverse noise and visual impacts on recreation resources. Additionally, short term air quality mitigation measures as noted in Section 4.7 will mitigate the air quality construction impacts; however, those impacts will likely remain adverse even with the application of the mitigation measures.

Measure R-1: Avoidance of the Temporary Occupancy and/or Permanent Acquisition of Recreation Resources Property. During final design, the TCA or the implementing agency/agencies will refine the design to the extent feasible based on engineering judgment and design standards to avoid or minimize the temporary occupancy during construction and the permanent acquisition of land currently occupied by or proposed for use by recreation resources. In the event that the temporary occupancy or permanent acquisition of this property cannot be avoided through design refinements, other mitigation measures identified for the compensation of temporary and permanent use of recreation resources property will apply to the build alternatives consistent with Uniform Relocation Assistance.

Measure R-2: Consultation with Owners/Operators of Recreation Resources. In conjunction with measures R-3 and R-4 (compliance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, refer to Section 4.6), the TCA or implementing agency/agencies will consult with the affected property owner/operator of recreation resources temporarily used or permanently acquired by a build Alternative. The purposes of this consultation will be to:

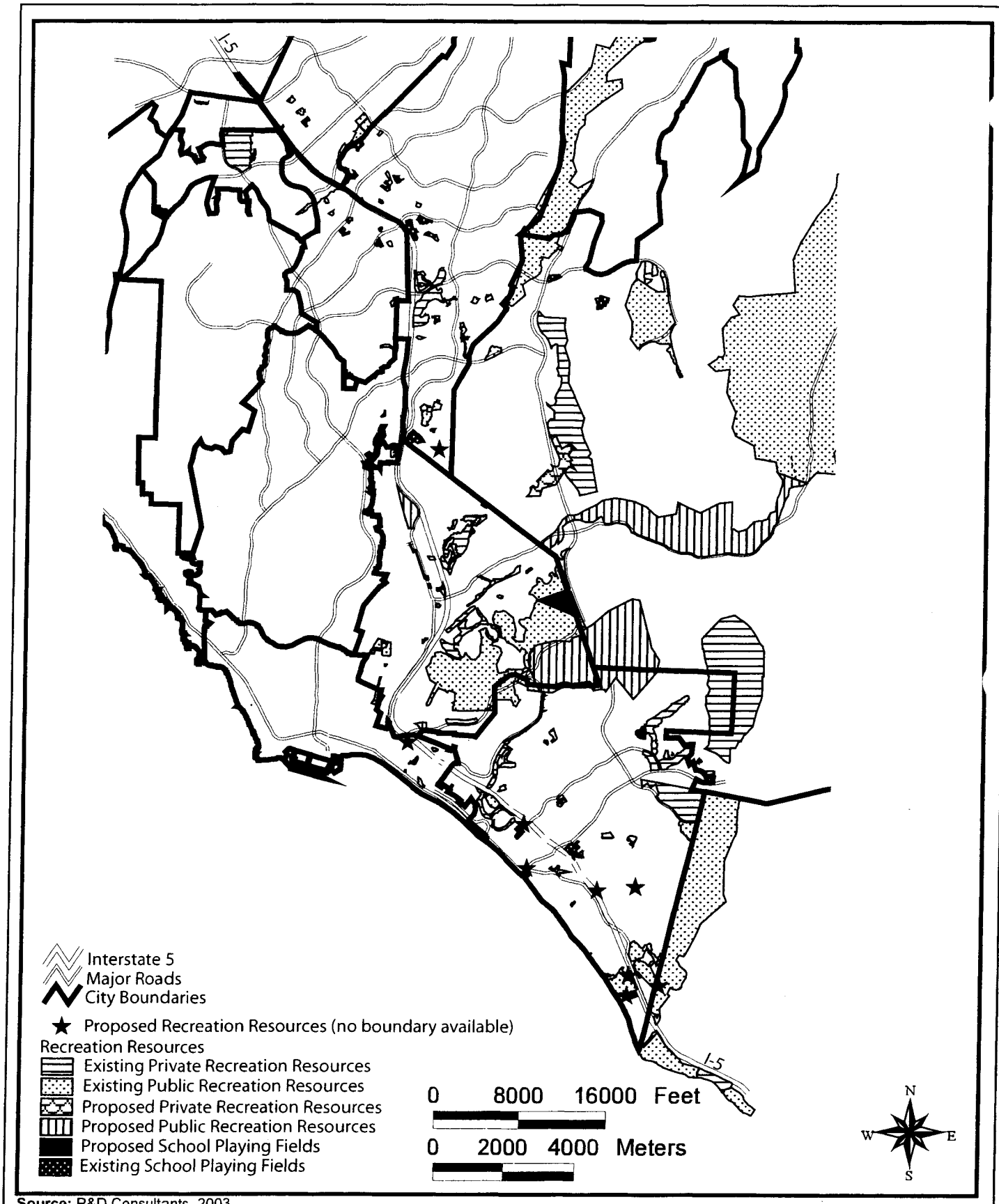
- Identify and implement opportunities to protect recreation resources in place.
- Identify and implement opportunities to replace lost recreation facilities within the existing recreation property.
- Combine compensation and protection/modification of affected recreation resources to comply with the Uniform Relocation Assistance Act and minimize adverse impacts on recreation resources.

Measure R-3: Direct Permanent Impacts (Property Acquisition) at Recreation Resources. Consistent with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or implementing agency/agencies will negotiate with the owner/operator whose recreation facilities will be permanently acquired to determine appropriate action and/or compensation to mitigate for the permanent acquisition.

Measure R-4: Direct Temporary Impacts (Occupancy of Property During Construction) on Recreation Resources. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or implementing agency/agencies will negotiate with the owner/operator whose recreation facilities will be temporarily occupied during construction to determine appropriate action and or compensation to mitigate for the temporary occupancy.

Measure R-5: Impacts on Trails. During final design, the TCA or implementing agency/agencies will provide for crossings of planned lateral Class I and existing and planned Class II bicycle trails, as well as hiking and equestrian trails at master planned locations across the road alignments. These trail crossings will be designed and constructed according to the standards of Caltrans and the applicable local jurisdictions. Construction plans will include directions to contractors related to minimizing potential disruptions to existing bicycle, riding and hiking trails during construction, as feasible.

Tables 4.25-35 to 4.25-38 list the project Alternatives, the resources along the Alternatives and which mitigation measures apply to potential impacts on those resources under each Alternative.



Source: P&D Consultants, 2003.

Generalized Study Area for Recreation Resources

TABLE 4.25-1
RECREATION RESOURCES IN THE CITY OF SAN CLEMENTE

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCES		
San Clemente State Beach 3030 Avenida Del Presidente	California State Parks	An approximately 38 hectare (ha) (94 acre (ac)) regional park in south San Clemente, southwest of Interstate 5 (I-5), immediately south of Avenida Calafia. Includes a beach, day and overnight camping (tent and recreational vehicle (RV)), showers, picnic areas, parking, and pedestrian and bicycle trails to the beach.
San Clemente Municipal Golf Course 150 East Magdalena	City of San Clemente	A special use facility of approximately 51 ha (126 ac) in south San Clemente, northeast of I-5, immediately north of Avenida San Luis Rey. Includes 18 holes, a clubhouse, parking and a practice range. Open to the public.
Verde Park 301 Calle Esquela	City of San Clemente	A neighborhood park of approximately 1.1 ha (2.7 ac) southeast of the I-5/Avenida Pico interchange directly adjacent to Calle Esquela. Includes tennis courts, playground equipment, parking and a path to San Clemente High School and Ole Hanson Elementary School.
San Gorgonio Park 2916 Via San Gorgonio	City of San Clemente	A community park of approximately 9.7 ha (24 ac) immediately south of Calle Vaquero, immediately adjacent to I-5. Includes tennis courts, a soccer field, baseball fields, basketball courts, playground equipment and parking.
Ole Hanson Elementary Sports Fields School 189 Avenida La Cuesta	Capistrano Unified School District	Approximately 2.1 ha (5.1 ac) of sports and baseball fields and basketball courts south of the I-5/Avenida Pico interchange. Used for school activities and for public Little League and other organized sports.
San Clemente High School Sports Fields 700 Avenida Pico	Capistrano Unified School District	Approximately 9.7 ha (24 ac) of sports fields on the southwest part of the overall school site, southeast of the I-5/Avenida Pico interchange. Used for school activities and for public Little League and other organized sports. Includes a track, football/soccer fields and baseball fields.
San Luis Rey Park 109 Avenue San Luis Rey	City of San Clemente	A community park of approximately 1.1 ha (2.7 ac) in south San Clemente, northeast of I-5, immediately north of Avenida San Luis Rey. Includes playground equipment, tennis courts, lawn bowling area, picnic facilities, restrooms and parking.
Vista Bahia Stadium Park 402 Calle Bahia	City of San Clemente	A special use facility of approximately 2.4 ha (6.0 ac) in south San Clemente, north of I-5, immediately adjacent to Calle Bahia and San Clemente Municipal Golf Course. Includes a Little League playing field, batting/pitching cage, concessions, trap and skeet range, restrooms and parking.
Calafia Beach 240 Avenida Calafia	City of San Clemente	A neighborhood park of approximately 3.3 ha (8.1 ac) northwest of San Clemente State Beach, west of the intersection of Avenida Calafia and Avenida Presidente. Includes a concession stand, showers, restrooms, parking and a beach.

TABLE 4.25-1
RECREATION RESOURCES IN THE CITY OF SAN CLEMENTE

Name and Address	Owner/Operator	Description
Bonito Canyon Park 1304 Calle Valley	City of San Clemente	A community park of approximately 3.5 ha (8.7 ac) directly north of the intersection of El Camino Real and Calle Aragon, directly adjacent to Calle Valle. Includes a Boys and Girls Club center, tennis courts, baseball fields, basketball courts, playground equipment and parking.
Rancho San Clemente Tennis Club 111 Avenida Vista Montana	Lloyd Harline	A privately owned community facility of approximately 4.1 ha (10 ac) directly south of the intersection of Avenida Vista Montana and Calle Del Cerro. Includes tennis courts and parking. Not open to the public.
Pacific Golf Club 200 Avenida La Pata	Mr. Okuda/Frank Adlesh	A privately owned special use facility of approximately 100 ha (246 ac) southeast of the Avenida Pico/Avenida La Pata intersection. Includes 27 holes, clubhouse facilities and parking. Not open to the public.
Talega Golf Course 990 Avenida Talega	Heritage Golf Group	A privately owned special use facility of approximately 63 ha (156 ac) northeast of the Avenida Pico/Avenida La Pata intersection. Includes 18 holes, clubhouse and parking. Open to the public.
Park at Calle Juarez and Calle Guadalajara Corner of Calle Juarez and Calle Guadalajara	Coast Homeowners Association/Tom Webb & Associates Property Management	A privately owned neighborhood facility of approximately 2.4 ha (6.0 ac) north of I-5, directly east of the intersection of Calle Juarez and Calle Guadalajara. Includes a bench and trails to the surrounding residential areas.
Shorecliffs Golf Course 501 Avenida Vaquero	Fon Leong	A privately owned special use facility approximately 45 ha (112 ac) directly north and southwest of I-5, directly adjacent to Calle Vaquero. Includes 18 holes, a clubhouse, a proshop and parking. Open to the public.
Mira Costa Park 34001 Camino Mira Costa	City of San Clemente	A neighborhood park of approximately 1.5 ha (3.7 ac) southeast of the intersection of Camino Mira Costa and Camino Estrella. Includes playground equipment and a picnic area.
Concordia Elementary School Sports Fields 3120 Avenida del Presidente	Capistrano Unified School District	Approximately 1.5 ha (3.6 ac) of sports and baseball fields south of the intersection of Avenida Calafia and I-5, adjacent to Avenida Del Presidente. Used for school activities and for public Little League and other organized sports.
Shorecliffs Middle School Sports Fields 240 Via Socorro	Capistrano Unified School District	Approximately 5.3 ha (13 ac) of sports fields southwest of the I-5, immediately southeast of Via Soccoro. Used for school activities and public organized sports. Facilities include a track, a soccer field/football field, baseball fields and basketball courts.
Talega Swim and Athletic Club Northeast of the intersection of Calle Altea and Camino Pedriza	Talega Homeowners Association	A community/special use park of approximately 2.9 ha (7.1 ac) proposed immediately east of the intersection of Avenida La Pata and Avenida Vista Hermosa. Includes a clubhouse, resort-style pool, water play fountains, tennis courts, basketball courts, roller sports rink, sand volleyball courts, sun bathing terrace and picnic areas.

TABLE 4.25-1
RECREATION RESOURCES IN THE CITY OF SAN CLEMENTE

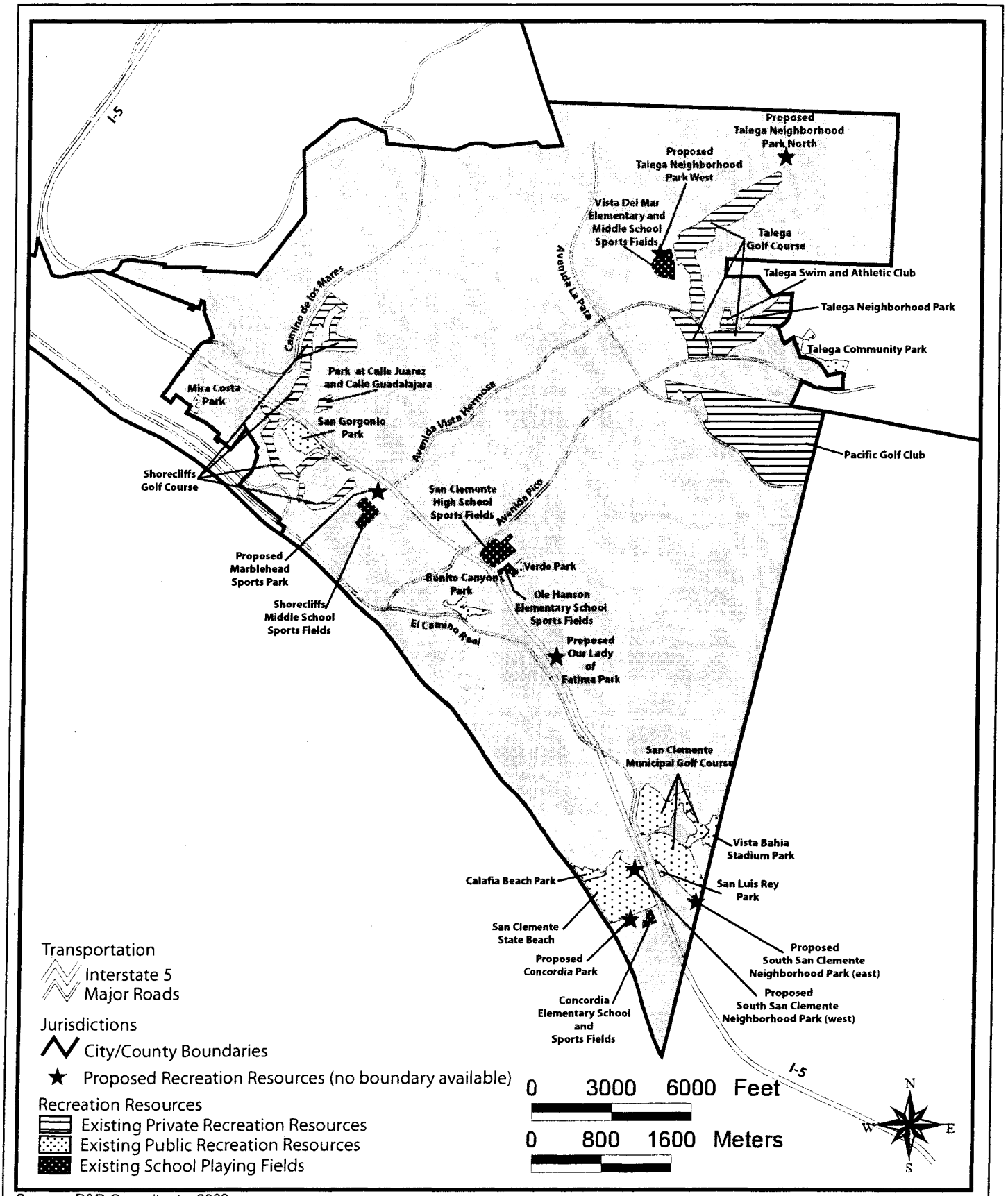
Name and Address	Owner/Operator	Description
Talega Community Park Southeast of the intersection of Calle Pacifica and Camino La Pedriza	City of San Clemente	A community park of approximately 0.16 ha (0.39 ac) proposed north of Avenida Pico, northeast of the intersection of Avenida Pico and Avenida Vista Hermosa. Includes playground equipment and a picnic area.
Vista Del Mar Elementary and Middle School Sports Fields 1130 Avenida Talega	Capistrano Unified School District	Approximately 6.4 ha (15.7 ac) of sports fields immediately northwest of the intersection of Calle Portofino and Avenida Talega. Used for school activities, Little League baseball and other organized sports.
PROPOSED RECREATION RESOURCES		
Proposed South San Clemente Neighborhood Park (east/west) In San Onofre State Park Cristianitos subunit and near the southernmost end of San Clemente Golf Course, or in the northeast section of San Clemente State Beach adjacent to the existing State Parks office. The location of this proposed park has not been decided to date.	The proposed resource is not in public ownership at this time.	A proposed neighborhood 2.0 ha (5.0 ac) park. Two locations under consideration: (1) immediately west of Avenida del Presidente, south of Avenida Calafia in south San Clemente or east of I-5 or (2) north of the I-5/Cristianitos interchange in San Onofre State Beach Cristianitos subunit. Proposed facilities include parking, beach access, restrooms, basketball courts, a skate court, tennis courts, volleyball courts, playground equipment, pedestrian and bicycle trail and a picnic area.
Proposed Vista Bahia Trap and Skeet Relocation Undeveloped part of the future expansion of Avenida La Pata north of the intersection with Avenida Vista Hermosa. The location of this proposed park has not been decided to date.	The proposed resource is not in public ownership at this time.	Proposed special use facility of unknown acreage. Two locations are under consideration: (1) northeast of I-5 immediately east of the Donna O'Neill Land Conservancy or (2) north of the existing terminus of Avenida La Pata, west of the terminus of Avenida de los Mares. Proposed facilities include parking, restrooms, a picnic area, a pedestrian/bicycle trail, and a trap and skeet range.
Proposed Marblehead Sports Park adjacent to Shorecliffs Middle School.	The proposed resource is not in public ownership at this time.	A community park of approximately 2.8 ha (7.0 ac) proposed immediately southwest of I-5, north of Avenida Pico, immediately east of Shorecliffs Middle School. Proposed to include a multipurpose/soccer field, an in-line hockey court, an exercise track, a concessions stand, playground equipment, a picnic area, a pedestrian/bicycle trail and parking.

TABLE 4.25-1
RECREATION RESOURCES IN THE CITY OF SAN CLEMENTE

Name and Address	Owner/Operator	Description
Proposed La Pata / Vista Hermosa Sports Park Corner of Avenida La Pata and Avenida Vista Hermosa, along the south side of Avenida Vista Hermosa.	The proposed resource is not in public ownership at this time.	A community/special use park of approximately 4.0 to 6.1 ha (10 to 15 ac) proposed immediately southwest of the intersection of Avenida La Pata and Avenida Vista Hermosa. Proposed to include a community building, parking, restrooms, baseball fields, a soccer/multipurpose field, basketball courts, and in-line hockey court, a skateboard course, tennis courts, sand volleyball courts, playground equipment, a concessions building, a picnic area and a pedestrian/bicycle trail.
Proposed Talega Neighborhood Park North along Avenida Talega about 0.96 km (0.6 mile) north of Talega Golf Course.	The proposed resource is not in public ownership at this time.	A neighborhood park of approximately 3.2 ha (8.0 ac) proposed east of Avenida La Pata, west of Cristianitos Road, north of Avenida Pico. Proposed to include restrooms, basketball courts, tennis courts, inline hockey court, sand volleyball court, an exercise course, playground equipment and a picnic area.
Proposed Equestrian Center in Talega Planned Community	In private ownership.	A special use facility of unknown size north of Avenida Pico, east of Avenida La Pata, west of Cristianitos Road, immediately adjacent to the Donna O'Neill Land Conservancy. Proposed to include parking, restrooms, a picnic area, and a pedestrian/bicycle/equestrian trail.
Proposed Concordia Park East of Concordia school and adjacent to the existing Concordia school site.	The proposed resource is not in public ownership at this time but is planned for public park uses.	A neighborhood park of approximately 2.0 ha (5.0 ac) proposed southeast of Avenida Calafia, west of Avenida del Presidente, immediately southeast of San Clemente State Beach. Proposed to include parking, baseball fields, a soccer/multipurpose field, basketball courts, playground equipment, a picnic area and an amphitheater or stage.
Proposed Talega Neighborhood Park southeast of the intersection of Calle Pacifica and Camino La Pedriza.	City of San Clemente	A neighborhood park of approximately 0.16 ha (0.39 ac) proposed north of Avenida Pico, northeast of the intersection of Avenida Pico and Avenida Vista Hermosa. Includes playground equipment and a picnic area.
Proposed Talega Neighborhood Park West South of the proposed Regional Park at the Prima Deshecha Sanitary Landfill and north of the intersection of Avenida Talega and Calle Portifino.	The proposed resource is not in public ownership at this time but is planned for public park uses.	A neighborhood park of approximately 3.2 ha (8.0 ac) proposed north of the intersection of Avenida Pico and Avenida Vista Hermosa, east of Avenida La Pata. Proposed to include restrooms, basketball courts, an in-line hockey court, tennis courts, an exercise course, playground equipment, a picnic area and a pedestrian/bicycle trail.
Proposed Our Lady of Fatima Park Along North La Esperanza.	The proposed resource is not in public ownership at this time.	A neighborhood park of approximately 0.8 ha (2.0 ac) proposed north of the intersection of North La Esperanza and Avenida Presidio, east of I-5. Proposed to include an exercise course, playground equipment and a picnic area.

Note: [1] Refer to Figure 4.25-2 for the locations of these recreation resources.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

Existing and Planned Recreation Resources in the SOCTIIP Study Area in the City of San Clemente

TABLE 4.25-2
RECREATION RESOURCES IN THE CITY OF SAN JUAN CAPISTRANO

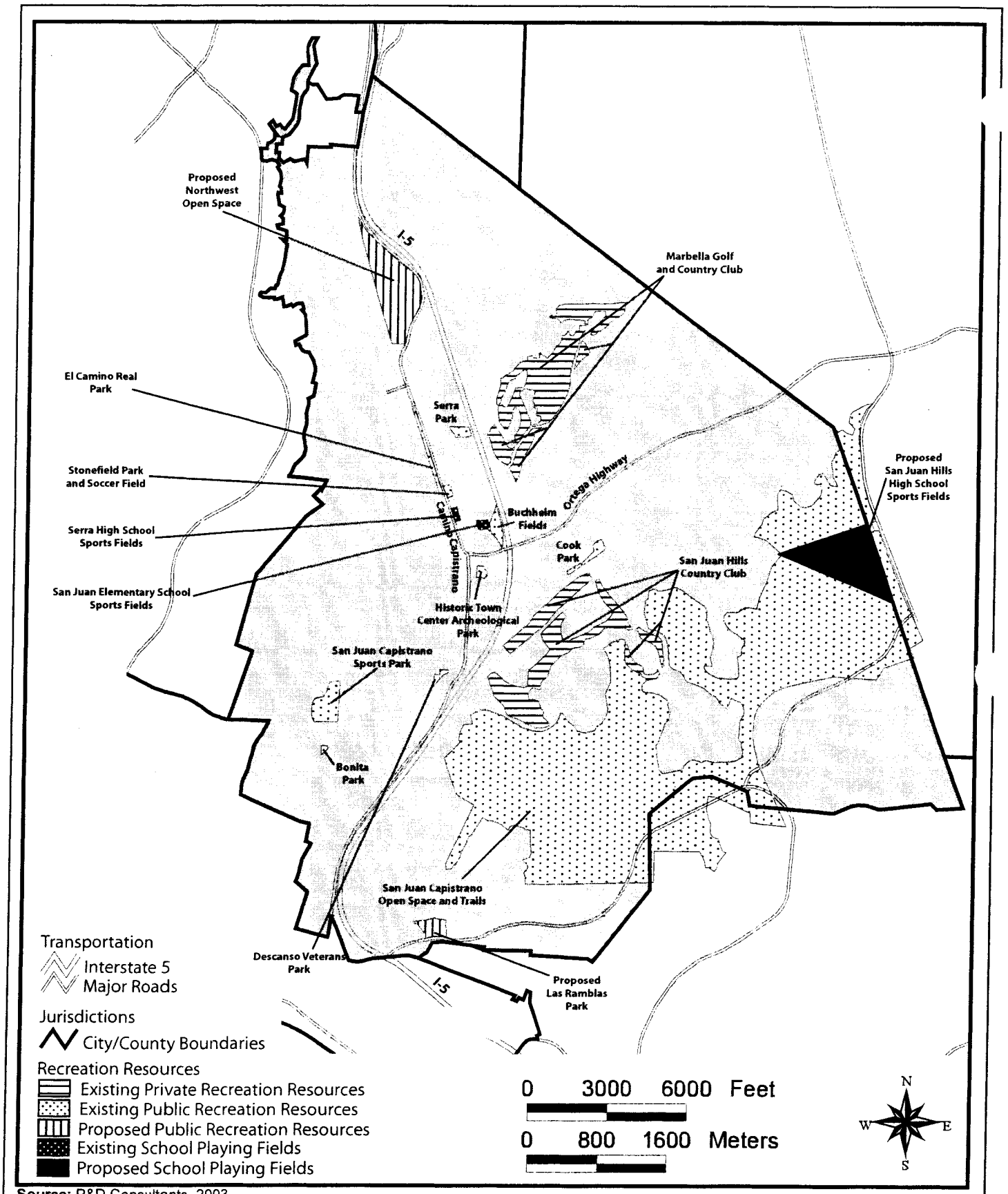
Name and Address	Owner/Operator	Description
Existing Recreation Resources		
San Juan Capistrano Open Space and Trails North of Camino Las Ramblas, south of San Juan Creek Road, east of the I-5 and west of Prima Deshecha Sanitary Landfill.	City of San Juan Capistrano	A special use facility of approximately 670 ha (1,655 ac) and 11.9 km (7.4 mi) of trails east of I-5, west of Avenida La Pata, north of Camino Las Ramblas, south of La Novia Avenue. Includes open space, trails and parking.
Descanso Veterans Park 32506 Paseo Adelanto	City of San Juan Capistrano	A mini park of approximately 0.9 ha (2.1 ac) west of I-5, south of Del Obispo Street. Includes playground equipment, a picnic area and a corral.
Buccheim Fields North of Spring Street and east of Camino Real.	City of San Juan Capistrano	A special use facility of approximately 2.8 ha (6.8 ac) immediately west of I-5, east of Camino Capistrano, north of Ortega Highway. Includes baseball fields, a concessions stand and parking.
Serra Park At the intersection of Calle Bonita and Calle Santa Rosalia.	City of San Juan Capistrano	A neighborhood park of approximately 1.6 ha (3.9 ac) immediately west of I-5, east of Camino Capistrano, south of Junipero Serra Road, immediately east of Calle Santa Rosalia. Includes playground equipment and a picnic area.
San Juan Elementary School Sports Fields 31642 El Camino Real	Capistrano Unified School District	Approximately 1.1 ha (2.6 ac) of sports fields east of Camino Capistrano, west of I-5, north of Ortega Highway, immediately northeast of the corner of El Camino Real and Spring Street. Used for public Little League and other organized sports. Facilities include a baseball field and a soccer/football field.
San Juan Hills Country Club 32120 San Juan Creek Road	Pacific Golf Enterprises	A privately owned special use facility of approximately 51 ha (126 ac) east of I-5, immediately southeast and northwest of San Juan Creek Road. Includes 18 holes, a clubhouse, a driving range and parking. Not open to the public.
Bonita Canyon Park West side of Via Del Rey, across from Via Lorado.	City of San Juan Capistrano	A mini park of approximately 0.4 ha (1.0 ac) south of Camino Del Avion, west of Del Obispo Street, immediately northeast of Via Del Rey. Includes playground equipment.
Historic Town Center Archaeological Park Along El Camino Real on the south side of Ortega Highway.	City of San Juan Capistrano	A neighborhood park of approximately 1.0 ha (2.3 ac) southeast of the intersection of Camino Capistrano and Ortega Highway, west of I-5. Includes a picnic area and multipurpose field.
Stone Field Park with Soccer Field Corner of La Zanja and Camino Capistrano.	City of San Juan Capistrano	A special use facility of approximately 0.8 ha (1.9 ac) immediately southeast of the intersection of La Zanja Street and Camino Capistrano. Includes a soccer field.

TABLE 4.25-2
RECREATION RESOURCES IN THE CITY OF SAN JUAN CAPISTRANO

Name and Address	Owner/Operator	Description
Marbella Golf and Country Club 30800 Golf Club Drive	American Golf	A privately owned special use facility of approximately 59 ha (145 ac) east of I-5, southeast of the intersection of Junipero Serra Road and Ranch Viejo Road, north of the intersection of Ranch Viejo Road and Ortega Highway. Includes 18 holes, a driving range, a practice putting green, a chipping area, a practice bunker, a clubhouse, tennis courts, workout facilities and a pool. Not open to the public.
Serra High School Sports Fields 31431 El Camino Real	Capistrano Unified School District	This High School borrows the City's sports fields at Stone Field Park approximately 1.5 ha (3.7 ac) immediately southeast of the intersection of La Zanja Street and Camino Capistrano. Includes a soccer field and basketball courts.
El Camino Real Park On Camino Capistrano between La Zanja and Calle Chueca	City of San Juan Capistrano	A community park on Camino Capistrano between La Zanja and Calle Chueca. Includes benches, picnic area, pathways and restrooms.
PROPOSED RECREATION RESOURCES		
Proposed Northwest Open Space Between Camino Capistrano and the railroad, north of Junipero Serra Road.	City of San Juan Capistrano	A special use facility of approximately 30 ha (75 ac) proposed immediately west of Camino Capistrano and east of the railroad tracks in north San Juan Capistrano. Proposed to include picnic areas, a historical area, a nature center, playground equipment and pedestrian/bicycle trails.
Proposed Las Ramblas Park North side of Camino Las Ramblas between Via California and Via De Agua.	The proposed resource is not in public ownership at this time.	A community park approximately 4.0 ha (9.9 ac) proposed immediately north of Camino Las Ramblas, east of I-5. Proposed to include a soccer field, baseball fields and parking.
Proposed San Juan Hills High School Sports Fields	Capistrano Unified School District	Proposed sports fields located on a 20.2 ha (50.0 ac) campus off La Pata Avenue. Will be used for school activities and organized sports.

Note: [1] Refer to Figure 4.25-3 for the locations of these recreation resources.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

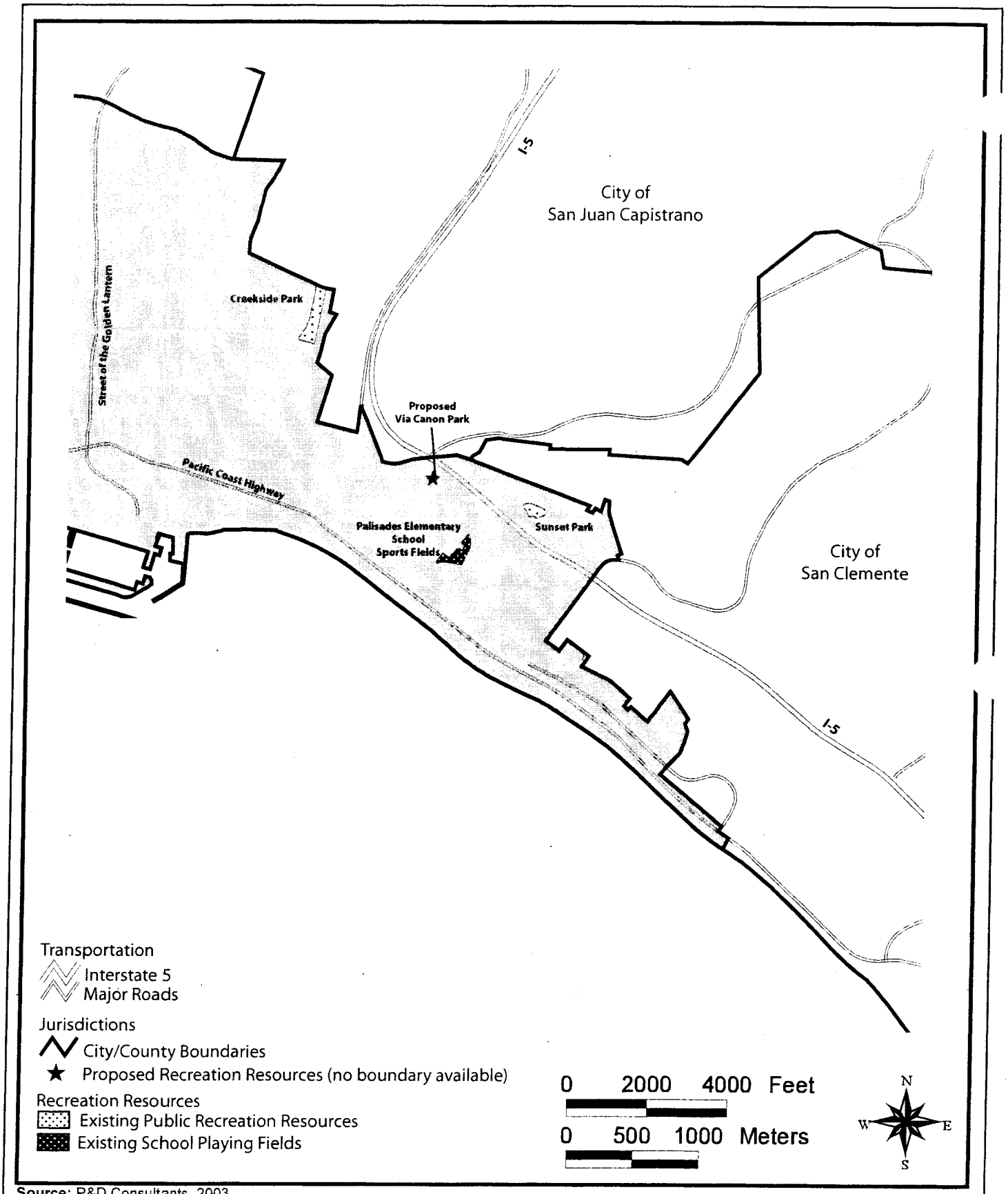
Existing and Planned Recreation Resources in the SOCTIIP Study Area in the City of San Juan Capistrano

TABLE 4.25-3
RECREATION RESOURCES IN THE CITY OF DANA POINT

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCES		
Sunset Park Corner of Calle Naranja and Calle Portola.	City of Dana Point	A neighborhood park of approximately 1.2 ha (3.0 ac) north of I-5, immediately east of the intersection of Calle Naranja and Calle Portola. Includes playground equipment, restrooms and picnic facilities.
Palisades Elementary School Sports Fields 26462 Via Sacramento	Capistrano Unified School District	Approximately 2.2 ha (5.4 ac) of sports fields south of the I-5/Pacific Coast Highway interchange in Dana Point, immediately east of the intersection of Via Sacramento and Avenida Las Palmas. Used for school activities and for public Little League and other organized sports. Facilities include baseball fields.
Creekside Park 25743 Stonehill Drive	City of Dana Point	A neighborhood park west of I-5 on Stonehill Drive. Includes picnic area, sand volleyball court, large playground, half basketball court, climbing wall, pathway, drinking fountains, portable restroom facilities and San Juan Creek Trail access.
PROPOSED RECREATION RESOURCE		
Proposed Via Canon Park Between Via Canon and Pacific Coast Highway where Via Canon separates from Camino Capistrano.	The proposed resource is not in public ownership at this time but is planned for public park uses.	A park of unknown size and unknown facilities proposed west of I-5, south of Pacific Coast Highway.

Note: [1] Refer to Figure 4.25-4 for the locations of these recreation resources.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

Existing and Planned Recreation Resources in the SOCTIIP Study Area in the City of Dana Point

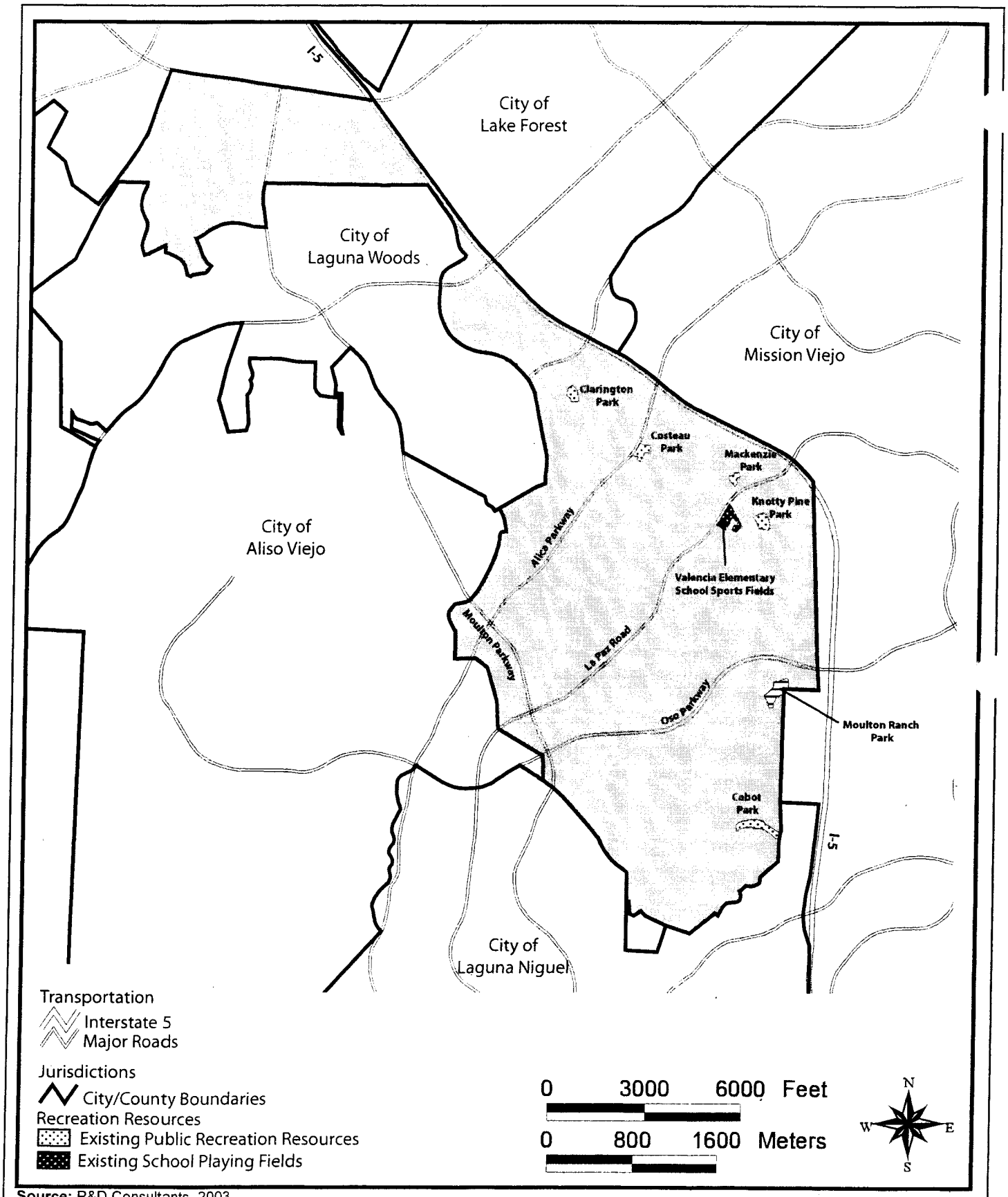
TABLE 4.25-4
RECREATION RESOURCES IN THE CITY OF LAGUNA HILLS

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCES		
Moulton Ranch Park Corner of Meadow Crest and Bridlewood.	Moulton Ranch III and Bella Vista Homeowners Association	A privately owned special use facility of approximately 3.1 ha (7.6 ac) west of I-5, south of Oso Parkway, immediately east of Bridlewood Drive. Includes playground equipment, a picnic area and a gazebo/barbeque (BBQ) area. Not open to the public.
Mackenzie Park Corner of Pike and MacKenzie.	City of Laguna Hills	A neighborhood park of approximately 1.2 ha (2.9 ac) southwest of I-5, northwest of La Paz Road, immediately northeast of the intersection of Pike Road and Mackenzie Street. Includes tennis courts and a grassy area.
Cabot Park Cabot Park before Rapid Falls along Cabot Road.	City of Laguna Hills	A community park of approximately 2.8 ha (7.0 ac) west of I-5, south of Rapid Falls Road, immediately southwest of the intersection of Rapid Falls Road and Cabot Road in south Laguna Hills. Includes baseball fields, playground equipment, restrooms and parking.
Costeau Park	City of Laguna Hills	A community park located two streets west of I-5 off Alicia Parkway and Costeau. Includes playground equipment, benches, sidewalk, lawn area, BBQ area, picnic area, volleyball court, basketball court, four square court, hop scotch, drinking fountains, bike path and a statue.
Clarrington Park	City of Laguna Hills	A neighborhood park off Alicia Parkway. Includes playground equipment, picnic area and benches.
Knotty Pine Park Near McIntyre and Knotty Pine.	City of Laguna Hills	A neighborhood park located off La Paz and I-5. Includes playground equipment, sand volleyball court, pathway, picnic area, drinking fountain, bike rack, lawn area and benches.

Notes:

[1] Refer to Figure 4.25-5 for the locations of these recreation resources.
[2] There are no proposed recreation resources in the SOCTIIP study area in the City of Laguna Hills.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

Existing Recreation Resources in the SOCTIIP Study Area in the City of Laguna Hills

TABLE 4.25-5
RECREATION RESOURCES IN THE CITY OF MISSION VIEJO

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCES		
Granada Park Corner of Via Grande and Puerta Real.	City of Mission Viejo	A neighborhood park of approximately 1.3 ha (3.3 ac) east of I-5, northwest of the intersection of Crown Valley Parkway and Marguerite Parkway, immediately north of the intersection of Via Grande and Puerta Real. Includes playground equipment and a picnic area.
Sycamore Park Terminus of Charlinda.	City of Mission Viejo	A neighborhood park of approximately 3.0 ha (7.4 ac) north of I-5, east of the intersection of Muirlands Boulevard and Alicia Parkway. Includes playground equipment, a picnic area and a pedestrian trail.
Aegean Park Terminus of Saturna along Maximus.	City of Mission Viejo	A mini park of approximately 0.2 ha (0.4 ac) north of the I-5, immediately east of the Alicia Parkway/I-5 interchange. Includes playground equipment.
Mission Viejo High School Sports Fields 25025 Chrisanta Drive	Saddleback Valley Unified School District	Approximately 10 ha (25 ac) of sports fields immediately east of the I-5/La Paz interchange. Used for public Little League and other organized sports. Includes baseball fields, a football/soccer field, racquetball courts, tennis courts and a pool.
Capistrano Valley High School 26301 Via Escolar	Capistrano Unified School District	Approximately 11 ha (26 ac) of sports fields immediately east of Marguerite Parkway, immediately north of Via Escolar, south of Avery Parkway. Used for public organized sports. Includes tennis courts, baseball fields, soccer/football field and pools.
Madrid Fore Park Corner of Ocean and Marino	City of Mission Viejo	A neighborhood park of approximately 1.2 ha (2.9 ac) northeast of the I-5/Oso Parkway interchange, immediately east of Via Oceano. This park includes playground equipment and a picnic area.
Doria Park Corner of Doria and Aurora	City of Mission Viejo	A neighborhood park approximately 1.0 ha (2.4 ac) north of I-5, northeast of the La Paz Road/I-5 interchange. Includes a basketball court, playground equipment and a picnic area.
Mission Viejo Golf Course 26200 Country Club Drive	Member owned	A privately owned special use facility of approximately 63 ha (156 ac) immediately east of the I-5/Oso Parkway interchange. Includes 18 holes and clubhouse facilities. Not open to the public.
Linda Vista Elementary School Sports Fields 25222 Pericia Drive Mission Viejo, CA.	Saddleback Valley Unified School District	Approximately 3.0 ha (7.3 ac) of sports fields east of the I-5/La Paz interchange. Used for public Little League and other organized sports. Includes baseball fields and a football/soccer field.

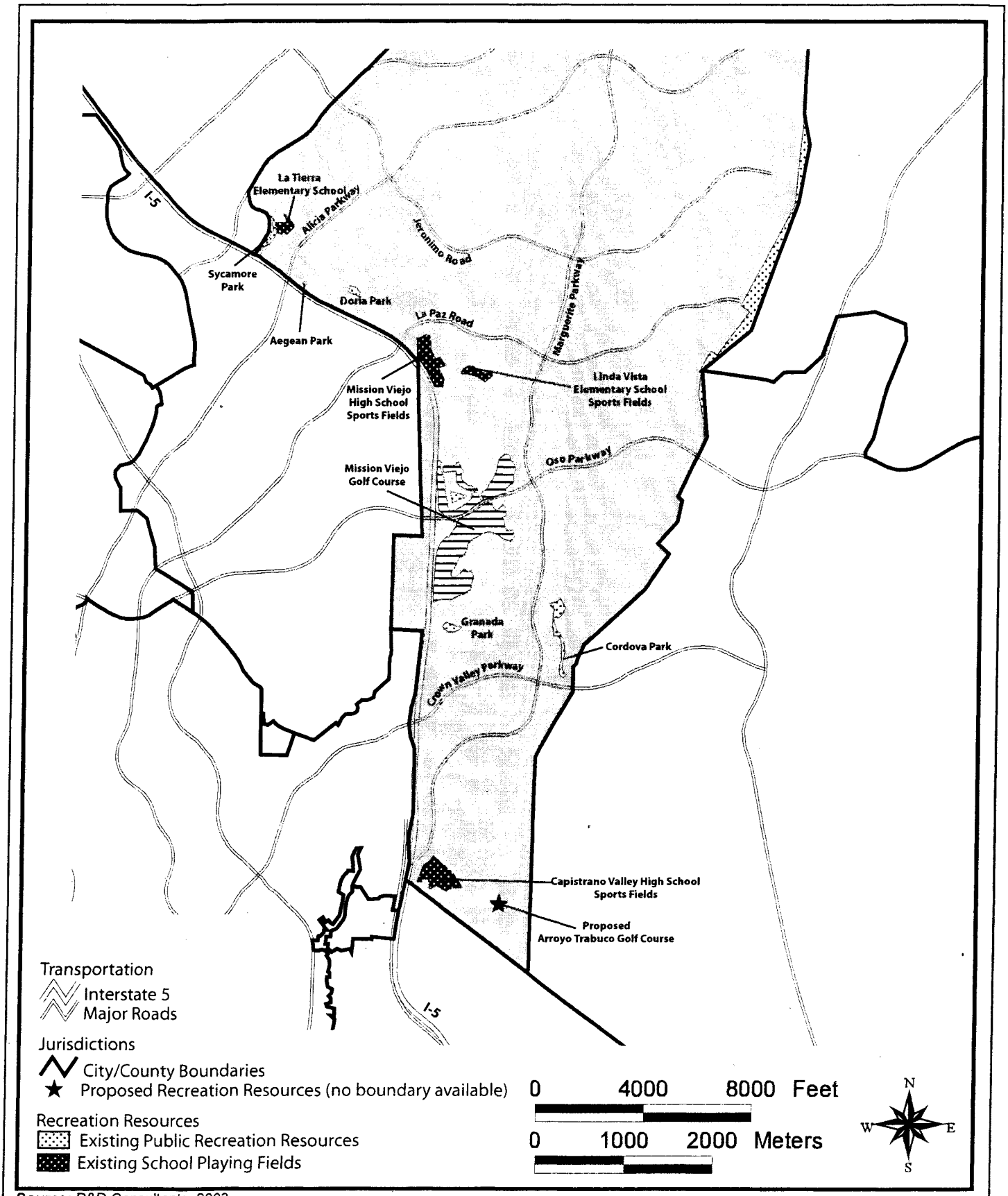
TABLE 4.25-5
RECREATION RESOURCES IN THE CITY OF MISSION VIEJO

Name and Address	Owner/Operator	Description
La Tierra Elementary School Sports Fields 24150 Lindley	Saddleback Valley Unified School District	Approximately 2.6 ha (6.5 ac) south of the intersection of Los Alisos Boulevard and Muirlands Boulevard, west of the intersection of Alicia Parkway and Muirlands Boulevard. Used for public Little League and other organized sports. Includes a soccer/football field and baseball fields.
La Paz Middle School Sports Fields 25151 Pradera Drive	Saddleback Valley Unified School District	Located east of I-5 off La Paz Road and Pradera Drive. Used for public Little League and other organized sports. Includes a track, football/soccer field, tennis courts, basketball courts and a snack shop.

Notes:

[1] Refer to Figure 4.25-6 for the locations of these resources.
[2] There are no proposed recreation resources in the SOCTIIP study area in the City of Mission Viejo.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

Existing and Planned Recreation Resources in the SOCTIIP Study Area in the City of Mission Viejo

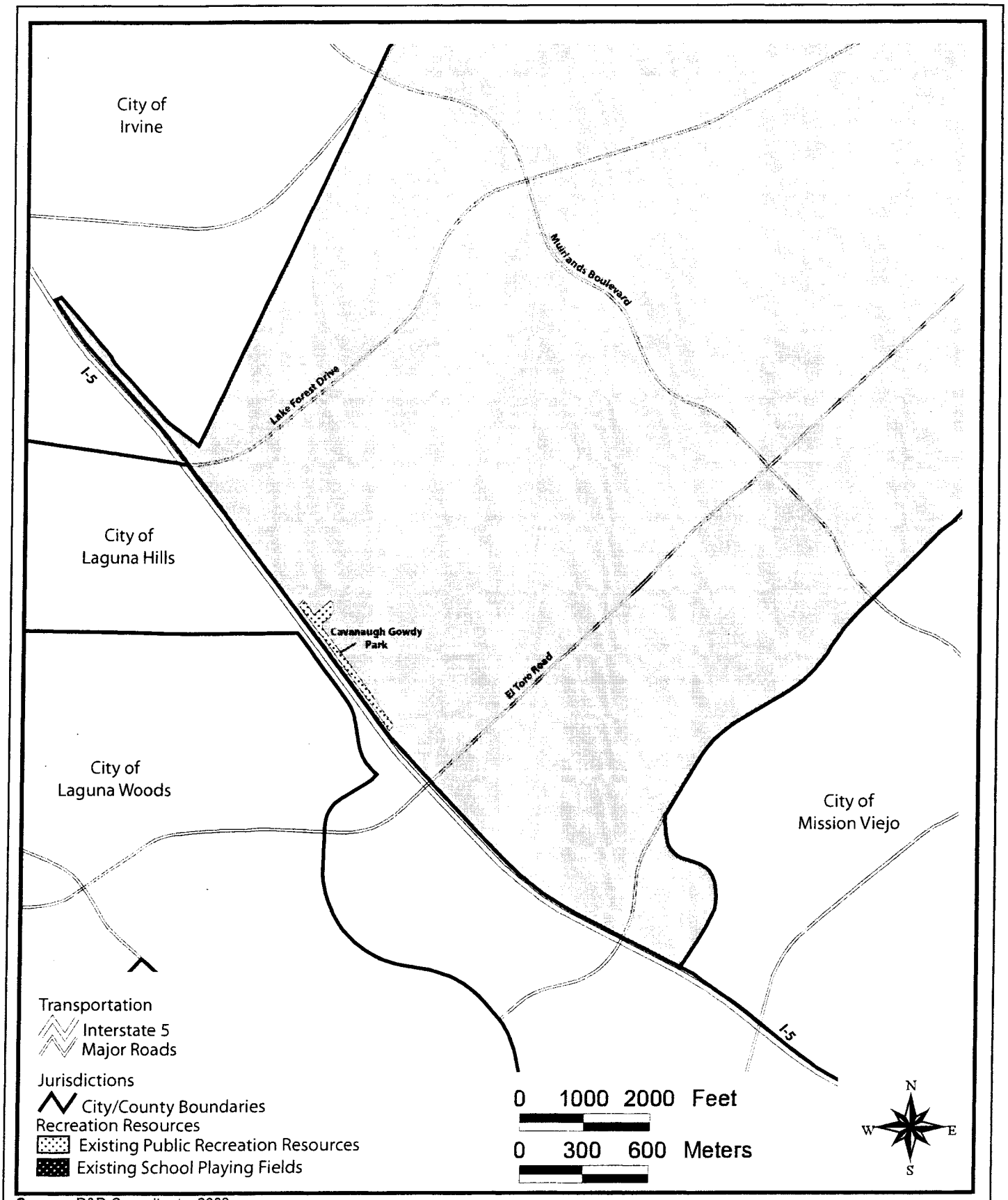
TABLE 4.25-6
RECREATION RESOURCES IN THE CITY OF LAKE FOREST

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCE		
Cavanaugh Gowdy Park Intersection of Ridge Route Drive and Gowdy Avenue.	City of Lake Forest	A mini park approximately 2.7 ha (6.7 ac) southeast of the Lake Forest/I-5 interchange, south of the intersection of Ridge Route Drive and Rockfield Boulevard. Includes playground equipment and a basketball half-court.

Notes:

[1] Refer to Figure 4.25-7 for the location of this recreation resource.
[2] There are no proposed recreation resources in the SOCTIIP study area in the City of Lake Forest.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

Existing Recreation Resources in the SOCTIIP Study Area in the City of Lake Forest

TABLE 4.25-7
RECREATION RESOURCES IN UNINCORPORATED ORANGE COUNTY

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCES		
General Thomas F. Riley Wilderness Park 30952 Oso Parkway Coto de Caza.	County of Orange	A regional park of approximately 202 ha (498 ac) and 8 km (5 mi) of trails west of Ortega Highway, immediately west of Oso Parkway, east of the intersection of Antonio Parkway and Oso Parkway. Includes unpaved hiking and bicycling trails, a ranger station/visitor information area and parking.
Donna O'Neill Land Conservancy Access is from Cristianitos Road off Ortega Highway at the "Green Gate."	Donna O'Neill Land Conservancy (private)	A private special use facility of approximately 520 ha (1,284 ac) north of Avenida Pico, south of Ortega Highway, immediately west of Cristianitos Road. Includes a visitor information center, classrooms, parking and trails. Open to public use only by appointment and guided tour.
O'Neill Regional Park 30892 Trabuco Canyon Trabuco Canyon.	County of Orange	A regional park of approximately 1,255 ha (3,100 ac) east of the intersection of Marguerite Parkway and Oso Parkway, west of the intersection of Oso Parkway and Antonio Parkway, immediately north of Oso Parkway. Includes a ranger station/visitor information facility, overnight camping, day camping, picnic facilities, hiking/bicycling/riding trails and parking.
Tesoro High School Sports Fields 29758 Oso Parkway Rancho Santa Margarita.	Capistrano Unified School District	Approximately 13 ha (32 ac) of sports fields east of Antonio Parkway, immediately south of Oso Parkway. Used for public Little League and other organized sports. Includes a football/soccer field, a baseball field, a track, a pool, tennis courts and basketball courts.
Las Flores Elementary School Sports Fields 25862 Antonio Parkway Rancho Santa Margarita.	Capistrano Unified School District	Approximately 4.9 ha (12 ac) of sports fields immediately northeast of the intersection of Antonio Parkway and Oso Parkway, immediately south of Sweetwater. Used for public Little League and other organized sports. Includes a multipurpose field.
Rancho Capistrano (Schuller Ministries part in unincorporated Orange County) 29251 Camino Capistrano San Juan Capistrano	Crystal Cathedral Church	Approximately 4.9 ha (12 ac) of sports fields east of I-5, immediately east of Camino Capistrano, southeast of the I-5/Alicia Parkway interchange. Used by charitable organizations and church related organization. Not open for public use. Includes four soccer fields.
Ladera Ranch Open Space Part of the Ladera development on the east side of Antonio Parkway.	In private ownership.	A special use facility of approximately 293 ha (725 ac). Includes wildlife corridors on the east side of Antonio Parkway/Avenida La Pata and one trail that follows the ridge along the east side of the Conservancy. (The entire Conservancy is 648 ha (1,600 ac) which surrounds the Ladera Ranch development.)
Caspers Regional Park 33401 Ortega Highway	County of Orange	A regional park of approximately 3,237 ha (8,000 ac) off Ortega Highway east of Antonio Parkway. Includes overnight camping facilities,

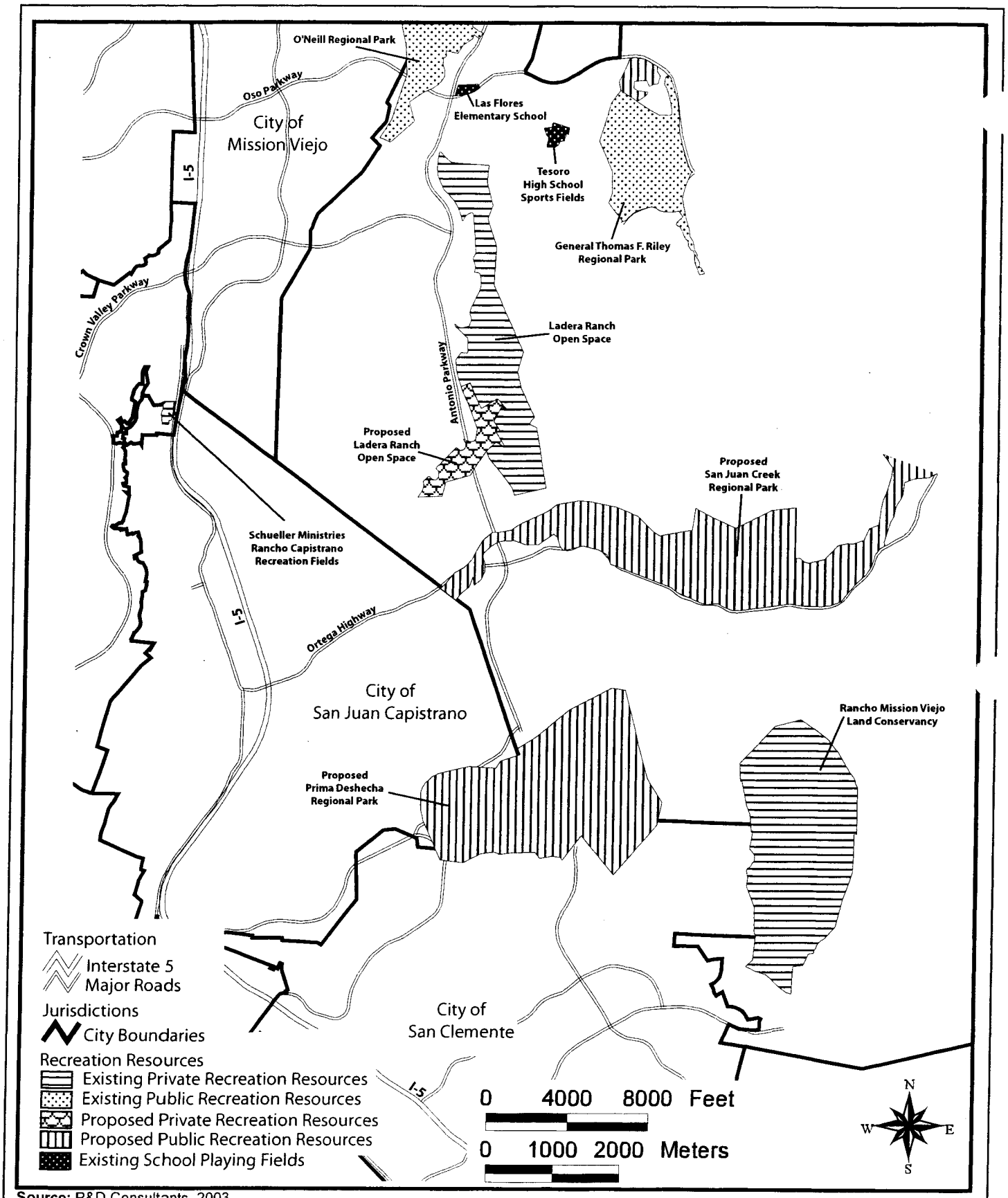
TABLE 4.25-7
RECREATION RESOURCES IN UNINCORPORATED ORANGE COUNTY

Name and Address	Owner/Operator	Description
		equestrian center and 35 mi trail network.
PROPOSED RECREATION RESOURCES		
Proposed Prima Deshecha Regional Park On the Prima Deshecha Sanitary Landfill site after landfilling is terminated in 2050.	County of Orange	A regional park proposed to be approximately 614 ha (1,518 ac).
Proposed San Juan Creek Regional Park Along San Juan Creek from the City of San Juan Capistrano's east border to the entrance of Casper's Regional Park.	In private ownership.	A regional park proposed to be approximately 565 ha (1,397 ac).
Ladera Open Space proposed to be dedicated. Part of Ladera development on the west side of Antonio Parkway.	In private ownership.	Open space proposed to be north of the agricultural area along Ortega Highway and east of Antonio Parkway.

Note:

[1] Refer to Figure 4.25-8 for the locations of these recreation resources.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2003.

Existing and Planned Recreation Resources in the SOCTIIP Study Area in Unincorporated Orange County

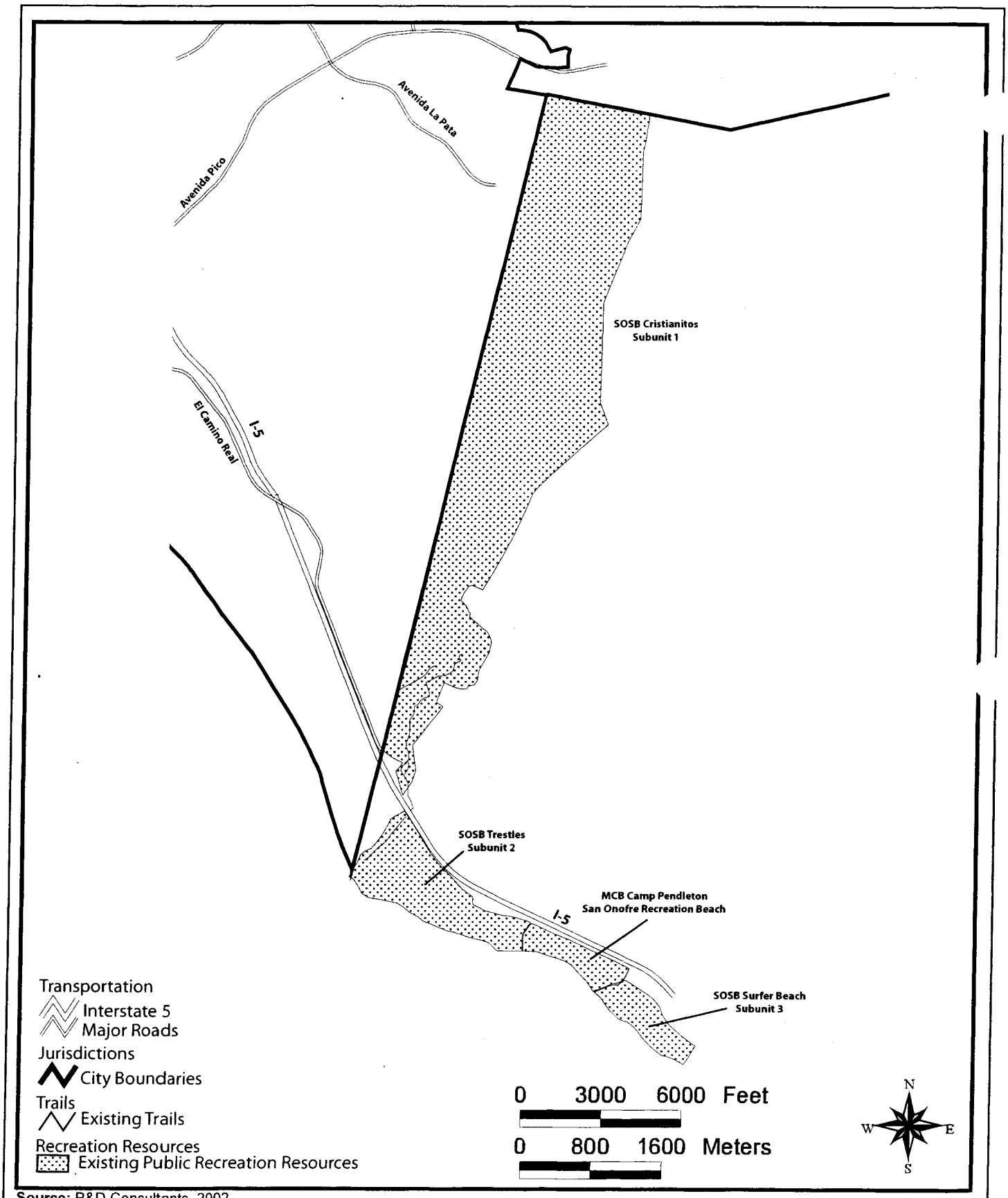
TABLE 4.25-8
RECREATION RESOURCES IN UNINCORPORATED SAN DIEGO COUNTY

Name and Address	Owner/Operator	Description
EXISTING RECREATION RESOURCES		
San Onofre State Beach (SOSB) Surfer Beach Subunit 3 West side of I- 5 along Old Pacific Coast Highway and north of the San Onofre Nuclear Generating Station (SONGS).	United States Navy/California State Parks	A state park of approximately 31 ha (76 ac) southeast of the Basilone Road/I-5 interchange, immediately northwest of SONGS. Includes beach access, parking, showers, lifeguard towers, restroom and a park gate.
SOSB Trestles Beach Subunit 2 South of Cristianitos Road along beach side of I-5 to Camp Pendleton's San Onofre Recreation Beach area.	United States Navy/California State Parks	A state park of approximately 86 ha (213 ac) immediately south of the Cristianitos Road/I-5 interchange. Includes a pedestrian and bicycle trail and restrooms. It also includes a 33.2 hectare (82 acre) wetland preserve area.
SOSB Cristianitos Subunit 1 East of I-5 extending north to the Orange County border. The remainder of the Subunit parallels Cristianitos Road and includes the San Mateo Campground area and trails.	United States Navy/California State Parks	A state park of approximately 564 ha (1,393 ac) immediately northeast of the Cristianitos Road/I-5 interchange. Includes overnight camping, day camping, pedestrian and bicycle trails, showers/restroom, lifeguard towers and parking.
Camp Pendleton San Onofre Recreation Beach Between SOSB Subunit 2 and Subunit 3.	United States Navy/Camp Pendleton Marine Corps Community Services Department	A regional park of approximately 23 ha (57 ac) south of the Basilone Road/I-5 interchange, immediately southwest of I-5. Includes overnight camping, a clubhouse, lodging facilities, RV camping, a concessions stand, lifeguard towers, picnic areas and parking. Open only to active duty military personnel and military retirees, their families and friends. Not open to the public.

Notes:

[1] Refer to Figure 4.25-9 for the locations of these recreation resources.
[2] There are no proposed recreation resources in the SOCTIIP study area in unincorporated San Diego County.

Source: P&D Consultants (2003).



Source: P&D Consultants, 2002.

Existing Recreation Resources in the SOCTIIP Study Area in Unincorporated San Diego County

TABLE 4.25-9
DISTANCES TO THE 66 DBA CONTOUR FOR DIFFERENT ROAD CROSS SECTIONS

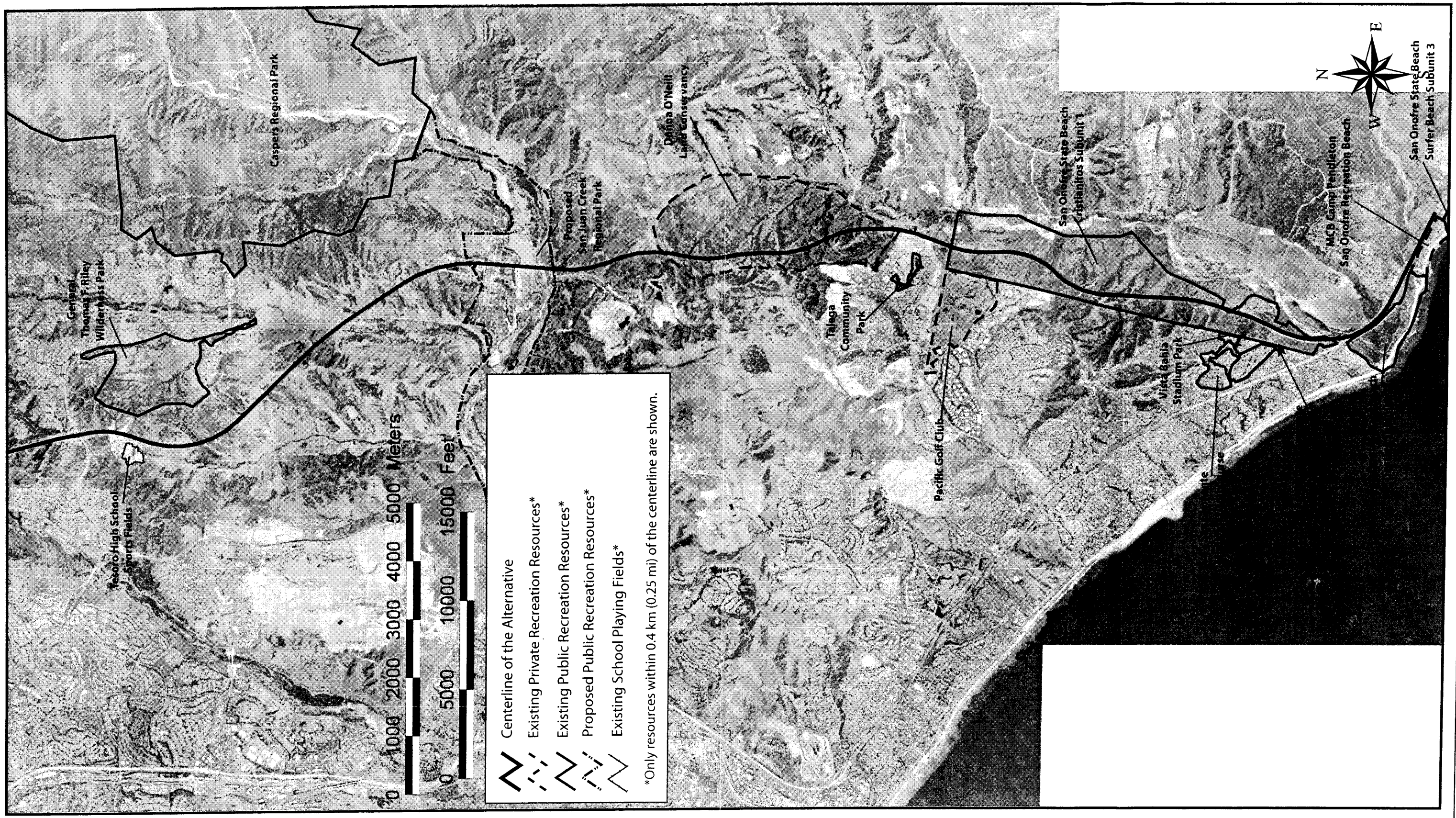
Number of Road Lanes	Distance from Centerline associated with Leq≥66 dBA	
	Meters	Feet
4 lanes	121.9	400
6 lanes	152.4	500
8 lanes	198.1	650
10 lanes	228.6	750
12 lanes	259.1	850
14 lanes	381.0	1,250
16 lanes	411.5	1,350

Source: Mestre Greve Associates (2001).

TABLE 4.25-10
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

RESOURCE [1]	FEC-W-INITIAL			FEC-W-ULTIMATE		
	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Tesoro High School Sports Fields	0	0	No	0	0	No
General Thomas F. Riley Wilderness Park	0	0	No	0	0	No
Caspers Regional Park	0	0	No	0	0	No
Proposed San Juan Creek Regional Park	1.7 (4.1)	26.2 (64.7)	Yes	1.7 (4.3)	26.9 (66.4)	Yes
Donna O'Neill Land Conservancy	66.8 (165.2)	63.5 (157.0)	Yes	68.7 (169.9)	64.8 (160.1)	Yes
Talega Community Park	0	0	No	0	0	No
Pacific Golf Club	0	0	No	0	0	No
SOSB Cristianitos Subunit 1	28.7 (71.1)	117.4 (290.0)	Yes	30.6 (75.6)	122.7 (303.3)	Yes
Vista Bahia Stadium Park	0	0	No	0	0	No
San Clemente Municipal Golf Course	0	0	No	0	0	No
SOSB Trestles Subunit 2	0.4(1.0)	3.5 (8.6)	No	0.4(1.1)	3.5 (8.8)	No
Proposed South San Clemente Neighborhood Park (east)	0	0	No	0	0	No
MCB Camp Pendleton San Onofre Recreation Beach	0	0	No	0	0	No
SOSB Surfer Beach Subunit 3	0	0	No	0	0	No

Note: [1] Refer to Figure 4.25-10 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the FEC-W Alternative

TABLE 4.25-11
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

Resource [1]	Amenities Affected
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Donna O'Neill Land Conservancy	Open space.
SOSB Cristianitos Subunit 1	Open space.
SOSB Trestles Subunit 2	Open space between I-5 and access road.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-10). Refer to Figure 4.25-10 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-12
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-W
Tesoro High School	At its closest point, this resource is 117 m (385 ft) from the centerline and 26 m (84 ft) from the disturbance limits of the FEC-W Alternative. Noise: This resource would be subject to construction noise and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall adjacent to the east side of this resource that will screen current views of a ridge to the east. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
General Thomas F. Riley Wilderness Park	At its closest point, this resource is 370 m (1,212 ft) from the centerline and 128 m (421 ft) from the disturbance limits of the FEC-W Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. Noise from the construction of this Alternative would impact this resource, but not adversely because it would affect an area that does not have frequent human use. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Caspers Regional Park	At its closest point, this resource in 1,249 m (4,098 ft) from the centerline of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse construction, pile driving or operational noise impacts on this recreation resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-12
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-W
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Donna O'Neill Land Conservancy	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore only has periodic human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by private controlled access from Cristianitos Road which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
Talega Community Park	At its closest point, this resource is 330 m (1082 ft) from the centerline 238 m (782 ft) from structures and 173 m (568 ft) from the disturbance limits of the FEC-W Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction and pile driving noise impacts of this Alternative would be adverse.

TABLE 4.25-12
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-W
	Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Pacific Golf Club	At its closest point, this resource is 382 m (1252 ft) from the centerline and 7 m (24 ft) from the disturbance limits of the FEC-W Alternative. Noise: This resource would be subject to construction noise impacts from this Alternative which would be adverse. Based on its distance from centerline and structures of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational or pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Vista Bahia Stadium Park	At its closest point, this resource is 388 m (1273 ft) from the centerline 368 m (1,206 ft) from structures and 196 m (643 ft) from the disturbance limits of the FEC-W Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction of this Alternative would result in adverse construction noise and pile driving noise impacts at this resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.

TABLE 4.25-12
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-W
San Clemente Municipal Golf Course	At its closest point, this resource is 286 m (938 ft) from the centerline 253 m (830 ft) from structures and 178 m (585 ft) from the disturbance limits of the FEC-W Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction of this Alternative would result in adverse construction and pile driving noise impacts at this resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed South San Clemente Neighborhood Park (east)	At its closest point, this resource is 305 m (1,002 ft) from the centerline 273 m (896 ft) from structures and 171 m (561 ft) from the disturbance limits of the FEC-W Alternative. Noise: This proposed resource would be not subject to adverse operational, construction noise or pile driving noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
SOSB Cristianitos Subunit 1	This Alternative is within the boundary of this resource. Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: This resource could potentially experience short term adverse access impacts during construction.

TABLE 4.25-12
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-W
	Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
SOSB Trestles Subunit 2	This Alternative is within the boundary of this resource. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. This resource would not be subject to operational impacts because of the design of the Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
MCB Camp Pendleton San Onofre Recreation Beach	At its closest point, this resource is 55 m (182 ft) from the centerline 32 m (104 ft) from structures and 19 m (63 ft) from the disturbance limits of the FEC-W Alternative. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
SOSB Surfer Beach Subunit 3	At its closest point, this resource is 175 m (575 ft) from the centerline and 124 m (408 ft) from the disturbance limits of the FEC-W Alternative. Noise: This Alternative would not have any operational impacts on this resource under the FEC-W Ultimate configuration. This resource would be subject to adverse construction noise impacts from this Alternative. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-12
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-W ALTERNATIVE

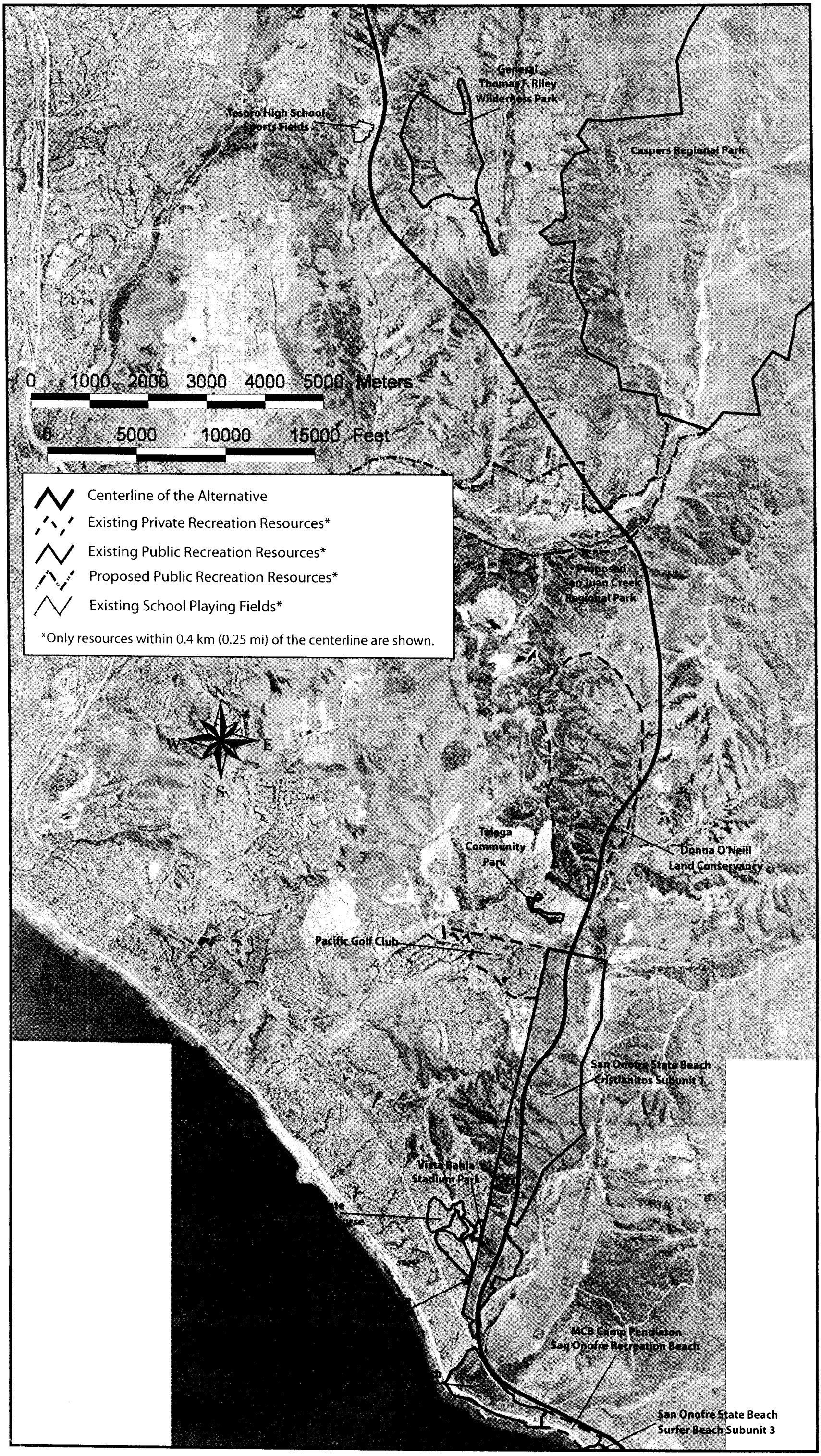
RESOURCE	INDIRECT IMPACTS OF THE FEC-W
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).

TABLE 4.25-13
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE [1]	FEC-M-INITIAL			FEC-M-ULTIMATE		
	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Tesoro High School Sports Fields	0	0	No	0	0	No
General Thomas F. Riley Wilderness Park	0	0	No	0	0	No
Caspers Regional Park	0	0	No	0	0	No
Proposed San Juan Creek Regional Park	1.4 (3.4)	13.6 (33.6)	Yes	1.5 (3.2)	15.5 (38.2)	Yes
Donna O'Neill Land Conservancy	0.6 (1.4)	23.9 (59.1)	Yes	0.7 (2.4)	24.7 (61.1)	Yes
Talega Community Park	0	0	No	0	0	No
Pacific Golf Club	0	0	No	0	0	No
SOSB Cristianitos Subunit 1	28.6 (70.8)	117.4 (290.0)	Yes	30.6 (75.4)	122.7 (303.3)	Yes
Vista Bahia Stadium Park	0	0	No	0	0	No
San Clemente Municipal Golf Course	0	0	No	0	0	No
SOSB Trestles Subunit 2	0.4(1.0)	3.5 (8.6)	No	0.4(1.0)	3.5 (8.8)	No
Proposed South San Clemente Neighborhood Park (east)	0	0	No	0	0	No
MCB Camp Pendleton San Onofre Recreation Beach	0	0	No	0	0	No
SOSB Surfer Beach Subunit 3	0	0	No	0	0	No

Note: [1] Refer to Figure 4.25-11 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the FEC-M Alternative

Figure 4.25-11

TABLE 4.25-14
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

Resource [1]	Amenities Affected
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Donna O'Neill Land Conservancy	Open space.
SOSB Cristianitos Subunit 1	Open space.
SOSB Trestles Subunit 2	Open space between I-5 and access road.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-13). Refer to Figure 4.25-11 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-15
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-M
Tesoro High School	At its closest point, this resource is 117 m (385 ft) from the centerline and 21 m (70 ft) from the disturbance limits of the FEC-M Alternative. Noise: This resource would be subject to construction noise and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall adjacent to the east side of this resource that will screen current views of a ridge to the east. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
General Thomas F. Riley Wilderness Park	At its closest point, this resource is 1212 m (370 ft) from the centerline and 128 m (421 ft) from the disturbance limits of the FEC-M Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. Noise from the construction of this Alternative would impact this resource, but not adversely because it would affect an area that does not have frequent human use. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Caspers Regional Park	At its closest point, this resource in 1,249 m (4,098 ft) from the centerline of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse construction, pile driving or operational noise impacts on this recreation resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-15
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-M
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Donna O'Neill Land Conservancy	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore only has periodic frequent human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by private controlled access from Cristianitos Road which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
Talega Community Park	At its closest point, this resource is 342 m (1,121 ft) from the centerline 236 m (775 ft) from structures and 36 m (120 ft) from the disturbance limits of the FEC-M Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction and pile driving noise impacts of this Alternative would be adverse.

TABLE 4.25-15
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-M
	Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Pacific Golf Club	At its closest point, this resource is 381 m (1,252 ft) from the centerline and 7 m (24 ft) from the disturbance limits of the FEC-M Alternative. Noise: This resource would be subject to construction noise impacts from this Alternative which would be adverse. Based on its distance from centerline and structures of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational or pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Vista Bahia Stadium Park	At its closest point, this resource is 388 m (1273 ft) from the centerline 368 m (1,207 ft) from structures and 199 m (652 ft) from the disturbance limits of the FEC-M Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction of this Alternative would result in adverse construction and pile driving noise impacts at this resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.

TABLE 4.25-15
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-M
San Clemente Municipal Golf Course	At its closest point, this resource is 286m (938 ft) from the centerline 253 m (850 ft) from structures and 178 m (585 ft) from the disturbance limits of the FEC-M Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction of this Alternative would result in adverse construction and pile driving noise impacts at this resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed South San Clemente Neighborhood Park (east)	At its closest point, this resource is 305 m (1,002 ft) from the centerline 273 m (896 ft) from structures and 171 m (561 ft) from the disturbance limits of the FEC-M Alternative. Noise: This proposed resource would be not subject to adverse operational, construction noise or pile driving noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
SOSB Cristianitos Subunit 1	This Alternative is within the boundary of this resource. Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: This resource could potentially experience short term adverse access impacts during construction.

TABLE 4.25-15
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-M
	Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
SOSB Trestles Subunit 2	This Alternative is within the boundary of this resource. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. This resource would not be subject to operational impacts because of the design of the Alternatives. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
MCB Camp Pendleton San Onofre Recreation Beach	At its closest point, this resource is 55 m (182 ft) from the centerline 32 m (104 ft) from structures and 19 m (63 ft) from the disturbance limits of the FEC-M Alternative. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
SOSB Surfer Beach Subunit 3	At its closest point, this resource is 175 m (575 ft) from the centerline and 124 m (408 ft) from the disturbance limits of the FEC-M Alternative. Noise: This Alternative would not have any operational impacts on this resource under the FEC-M Ultimate configuration. This resource would be subject to adverse construction noise impacts from this Alternative. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-15
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE FEC-M
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).

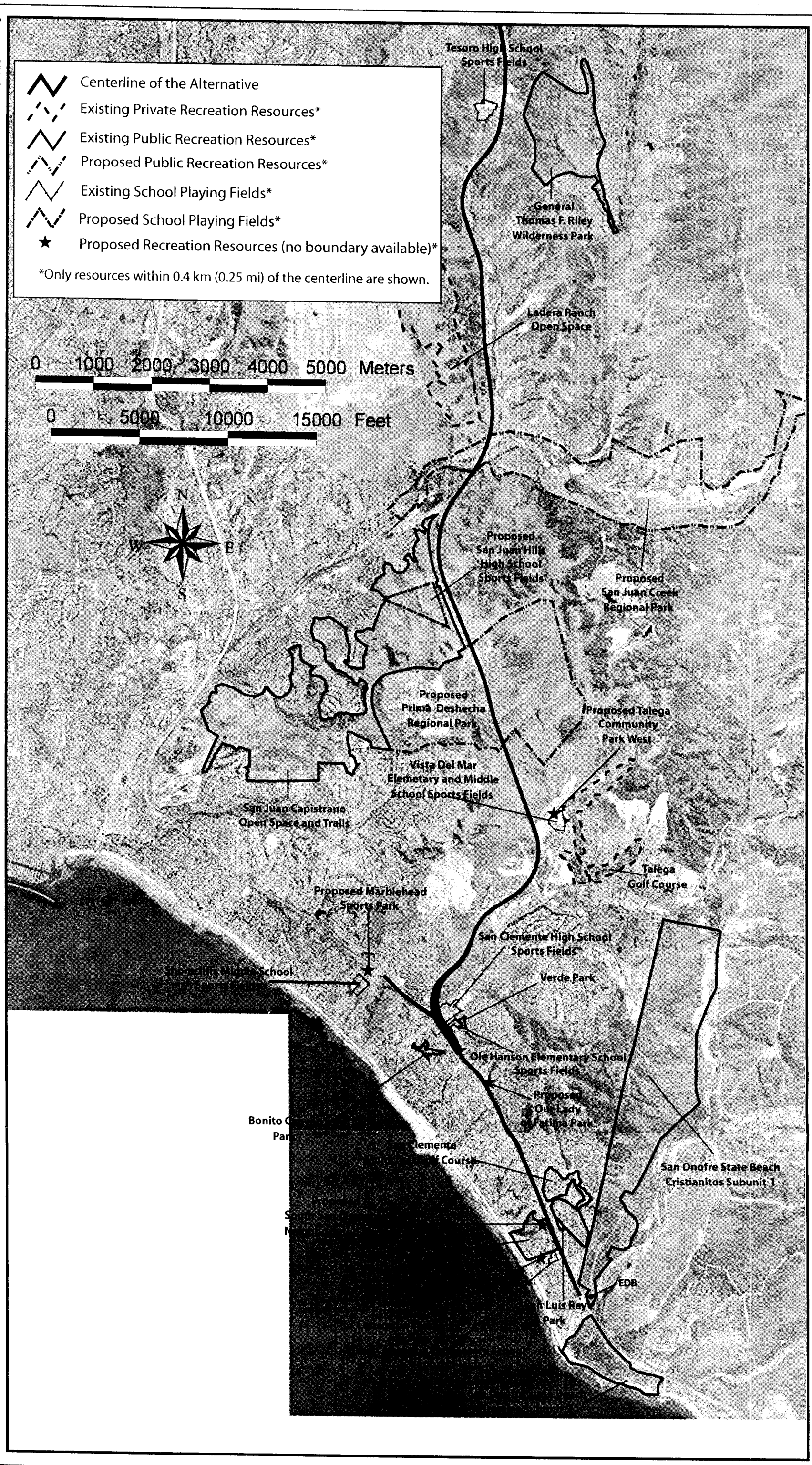
TABLE 4.25-16
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE [1]	CC-INITIAL			CC-ULTIMATE		
	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Tesoro High School Sports Fields	0	0	No	0	0	No
General Thomas F. Riley Wilderness Park	0	0	No	0	0	No
Ladera Ranch Open Space	0	0	No	0	0	No
Proposed San Juan Creek Regional Park	8.9 (22.2)	4.5 (11.0)	Yes	8.5 (21.0)	5.2 (12.8)	Yes
San Juan Capistrano Open Space and Trails	1.3 (3.3)	0.3 (0.8)	No	1.1 (2.8)	0.3 (0.8)	No
Proposed Prima Deshecha Regional Park	7.9 (19.4)	30.0 (74.2)	Yes	7.1 (17.5)	37.5 (92.8)	Yes
San Clemente High School Sports Fields	0.4 (0.8)	2.4 (6.0)	No	0.4 (1.0)	2.4 (6.0)	No
Ole Hanson Elementary School Sports Fields	0.2 (0.6)	0.2 (0.4)	No	0.2 (0.6)	0.2 (0.4)	No
Verde Park	0	0	No	0	0	No
Bonito Canyon Park	0	0	No	0	0	No
Talega Golf Course	0	0	No	0	0	No
Proposed Talega Elementary Sports Fields	0	0	No	0	0	No
Shorecliffs Middle School Sports Fields	0	0	No	0	0	No
Proposed Marblehead Sports Park	0	0	No	0	0	No
San Clemente Municipal Golf Course	0	0	No	0	0	No
San Luis Rey Park	0	0	No	0	0	No
Concordia Elementary School Sports Fields	0	0	No	0	0	No
San Clemente State Beach	1.2 (2.9)	1.2 (2.9)	No	1.2 (2.9)	1.2 (2.9)	No
SOSB Cristianitos Subunit 1	0	1.1 (2.7)	No	0	1.1 (2.7)	No
Proposed Talega Community Park	0	0	No	0	0	No

TABLE 4.25-16
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE [1]	CC-INITIAL			CC-ULTIMATE		
	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
West						
Proposed Our Lady of Fatima Park	0	0	No	0	0	No
Proposed South San Clemente Neighborhood Park (east)	0	0	No	0	0	No
Proposed South San Clemente Neighborhood Park (west)	0	0	No	0	0	No
Proposed Concordia Park	0	0	No	0	0	No

Note: [1] Refer to Figure 4.25-12 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the CC Alternative

TABLE 4.25-17
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE CC ALTERNATIVE

Resource [1]	Amenities Affected
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
San Juan Capistrano Open Space and Trails	Open space.
Proposed Prima Deshecha Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Ole Hanson Elementary School Sports Fields	Children's playground and part of field.
San Clemente High School Sports Fields	Part of one baseball diamond and part of the track.
San Clemente State Beach	Open space along I-5.
SOSB Cristianitos Subunit 1	Part of parking lot.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-16). Refer to Figure 4.25-12 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
Tesoro High School Sports Fields	At its closest point, this resource is 103 m (337 ft) from the centerline and 29 m (94 ft) from the disturbance limits of the CC Alternative. Noise: This resource would be subject to construction noise and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall adjacent to the east side of this resource that will screen current views of a ridge to the east. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
General Thomas F. Riley Wilderness Park	At its closest point, this resource is 376 m (1,232 ft) from the centerline of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. Noise from the construction of this Alternative would impact this resource, but not adversely because it would affect an area that does not have frequent human use. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Ladera Ranch Open Space	At its closest point, this resource is 206 m (676 ft) from the centerline and 51 m (166 ft) from the disturbance limits of this Alternative. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative would not result in visual impacts to viewers because this resource is not available for recreational or other public uses.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
San Juan Capistrano Open Space and Trails	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Prima Deshecha Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
	Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
San Clemente High School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes ramps adjacent to the west side of this resource that will introduce new elevated structures into the viewshed. However, this impact would not be substantially adverse because the use of this resource is for active sports and users would not be sensitive to changes in the viewshed.
Ole Hanson Elementary School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. Operational impacts of this Alternative on this resource would not be adverse because the design of this Alternative shields this resource from existing noise sources resulting in a reduction of noise impacts at this resource. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes ramps adjacent to the west side of this resource that will introduce new elevated structures into the viewshed. However, this impact would not be substantially adverse because the use of this resource is for active sports and users would not be sensitive to changes in the viewshed.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
Verde Park	At its closest point, this resource is 185 m (606 ft) from the centerline, 191m (628 ft) from structures, and 154 m (506 ft) from the disturbance limits of the CC Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. However, this resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: Based on the distance of this resource from the centerline and intervening topography and land uses, this Alternative will not result in adverse visual impacts on this recreation resource.
Bonito Canyon Park	At its closest point, this resource is 186 m (609 ft) from the centerline, 263 m (862 ft) from structures and 121 m (396 ft) from disturbance limits of the CC Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. However, this resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Talega Golf Course	At its closest point, this resource is 102 m (334 ft) from the centerline, 356 m (1,168 ft) from structures and 96 m (315 ft) from disturbance limits of the CC Alternative. Noise: Based on the distance from centerline and intervening topography, this resource would not be subject to adverse operational impacts of this Alternative. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Vista Del Mar Elementary and Middle School Sports Fields	At its closest point, this resource is 270 m (887 ft) from the centerline, 356 m (1,168 ft) from structures and 131 m (430 ft) from disturbance limits of the CC Alternative. Noise: Based on its distance from centerline of this Alternative, this resource will not experience adverse operational noise impacts. This resource would be subject to adverse construction and pile driving noise. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall southwest of the resource that will partially screen current views of a ridge to the west. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
Proposed Talega Community Park West	At its closest point, this resource is 414 m (1,359 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Shorecliffs Middle School Sports Fields	At its closest point, this resource is 294 m (966 ft) from the centerline of this Alternative. Noise: Based on its distance from centerline, structures and disturbance limits of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
	Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Marblehead Sports Park	At its closest point, this resource is 286 m (938 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
San Clemente Municipal Golf Course	At its closest point, this resource is 94 m (308 ft) from the centerline, 69 m (225 ft) from structures and 29 m (95 ft) from disturbance limits of the CC Alternative. Noise: This resource would be subject to construction and pile driving noise impacts from this Alternative which would be adverse. Operational impacts of this Alternative on this resource would not be adverse. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
San Luis Rey Park	At its closest point, this resource is 128 m (418 ft) from the centerline, 95 m (313 ft) from structures and 63 m (206 ft) from disturbance limits of the CC Alternative. Noise: This resource would be subject to construction and pile driving noise impacts from this Alternative which would be adverse. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Concordia Elementary School Sports Fields	At its closest point, this resource is 105 m (344 ft) from the centerline, 300 m (982 ft) from structures and 51 m (166 ft) from disturbance limits of the CC Alternative. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
San Clemente State Beach	This Alternative is within the boundary of this resource. Noise: This resource would be subject to construction and pile driving noise impacts from this Alternative which would be adverse. Operational impacts of this Alternative on this resource would not be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
SOSB Cristianitos Subunit 1	This Alternative is within the boundary of this resource. Noise: This resource would be subject to construction and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Our Lady of Fatima Park	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed South San Clemente Neighborhood Park (west)	At its closest point, this resource is 113 m (370 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC
	Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed South San Clemente Neighborhood Park (east)	At its closest point, this resource is 355 m (1,163 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed Concordia Park	At its closest point, this resource is 366 m (1,197 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.

TABLE 4.25-18
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC ALTERNATIVE

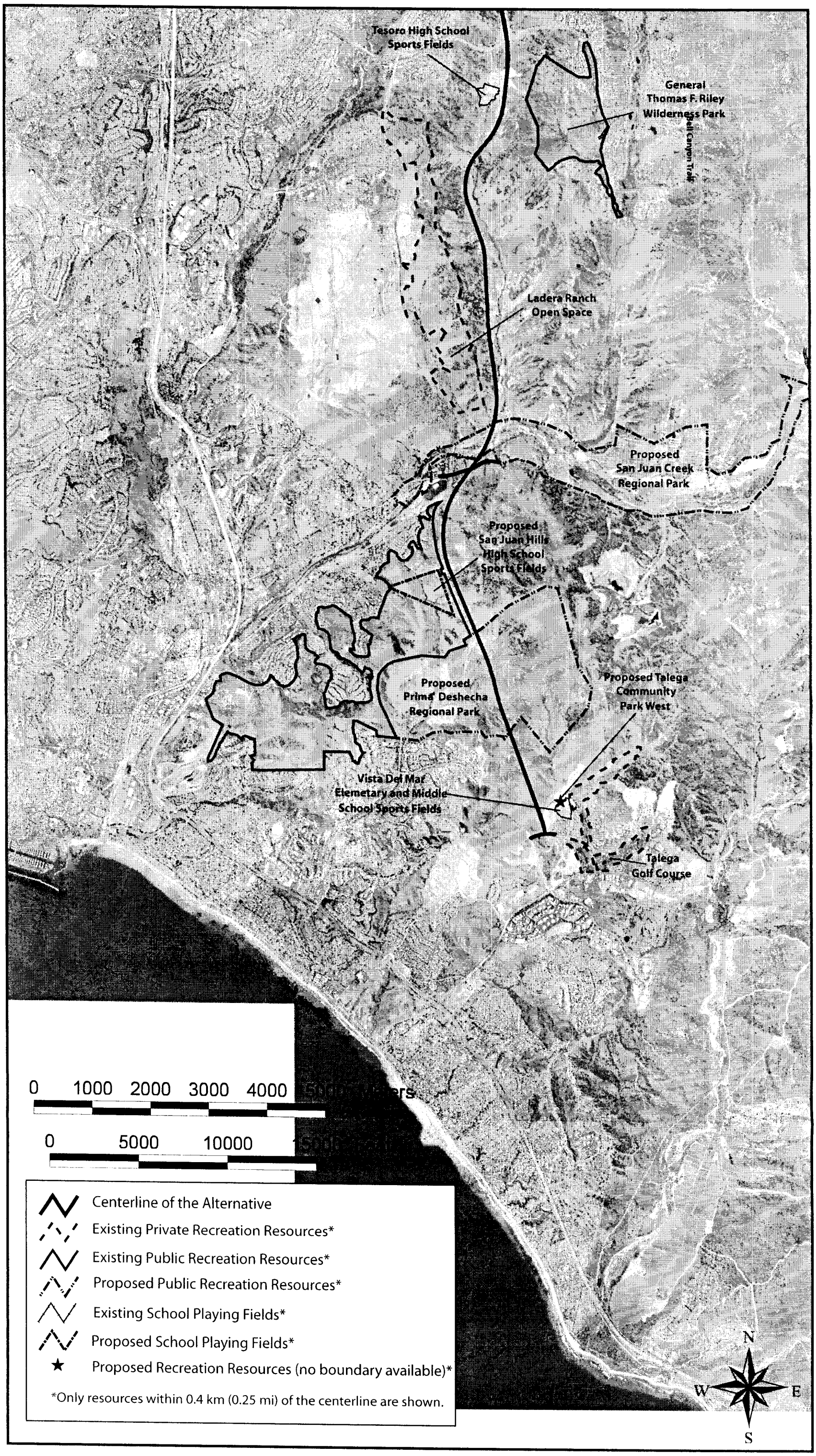
RESOURCE	INDIRECT IMPACTS OF THE CC
Proposed San Juan Hills High School Sports Fields	At its closest point, this resource is 187 m (615 ft) from the centerline, 1,595 m (5,232 ft) from structures and 110 m (136 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction and operational noise impacts if this resource is operational during construction and operation of this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource will be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).

TABLE 4.25-19
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE CC-ALPV ALTERNATIVE

RESOURCE [1]	CC-ALPV-INITIAL			CC-ALPV-ULTIMATE		
	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Tesoro High School Sports Fields	0	0	No	0	0	No
General Thomas F. Riley Wilderness Park	0	0	No	0	0	No
Ladera Ranch Open Space	0	0	No	0	0	No
Proposed San Juan Creek Regional Park	8.9 (22.2)	4.5 (11.0)	Yes	8.5 (21.0)	5.2 (12.8)	Yes
San Juan Capistrano Open Space and Trails	1.0 (2.5)	0.3 (0.8)	No	1.2 (2.8)	0.3 (0.8)	No
Proposed Prima Deshecha Regional Park	8.0 (19.6)	30.0 (74.2)	Yes	7.1 (17.4)	37.5 (92.8)	Yes
Talega Golf Course	0	0	No	0	0	No
Proposed Talega Elementary School Sports Fields	0	0	No	0	0	No
Proposed Talega Community Park West	0	0	No	0	0	No

Note: [1] Refer to Figure 4.25-13 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the CC-ALPV Alternative

Figure 4.25-13

TABLE 4.25-20
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE CC-ALPV ALTERNATIVE

Resource [1]	Amenities Affected
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
San Juan Capistrano Open Space and Trails	Open space.
Proposed Prima Deshecha Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-19). Refer to Figure 4.25-13 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-21
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC-ALPV-ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC-ALPV
Tesoro High School Sports Fields	At its closest point, this resource is 103 m (337 ft) from the centerline and 29 m (94 ft) from the disturbance limits of the CC-ALPV Alternative. Noise: This resource would be subject to construction noise and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall adjacent to the east side of this resource that will screen current views of a ridge to the east. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
General Thomas F. Riley Wilderness Park	At its closest point, this resource is 376 m (1,232 ft) from the centerline and 214 m (702 ft) from the disturbance limits of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. Noise from the construction of this Alternative would impact this resource, but not adversely because it would affect an area that does not have frequent human use. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.25-21
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC-ALPV-ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC-ALPV
Ladera Ranch Open Space	At its closest point, this resource is 206 m (676 ft) from the centerline, 51 m (166 ft) from the disturbance limits and 182 m (598 ft) from the structures of this Alternative. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative would not result in visual impacts to viewers because this resource is not available for recreational or other public uses.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
San Juan Capistrano Open Space and Trails	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

TABLE 4.25-21
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC-ALPV-ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE CC-ALPV
	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Prima Deshecha Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Talega Golf Course	At its closest point, this resource is 206 m (693 ft) from the centerline, 349 m (1,147 ft) from structures and 28 m (92 ft) from disturbance limits of the CC-ALPV Alternative. Noise: Based on the distance from centerline and intervening topography, this resource would not be subject to adverse operational impacts of this Alternative. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Vista Del Mar Elementary and Middle School Sports Fields	At its closest point, this resource is 270 m (887 ft) from the centerline, 358 m (1,173 ft) from structures and 131 m (430 ft) from the disturbance limits of the CC-ALPV Alternative. Noise: Based on its distance from centerline of this Alternative, this resource will not experience adverse operational noise impacts. This resource would be subject to adverse construction and pile driving noise impacts if construction is completed prior to implementation of this Alternative.

TABLE 4.25-21
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE CC-ALPV-ALTERNATIVE

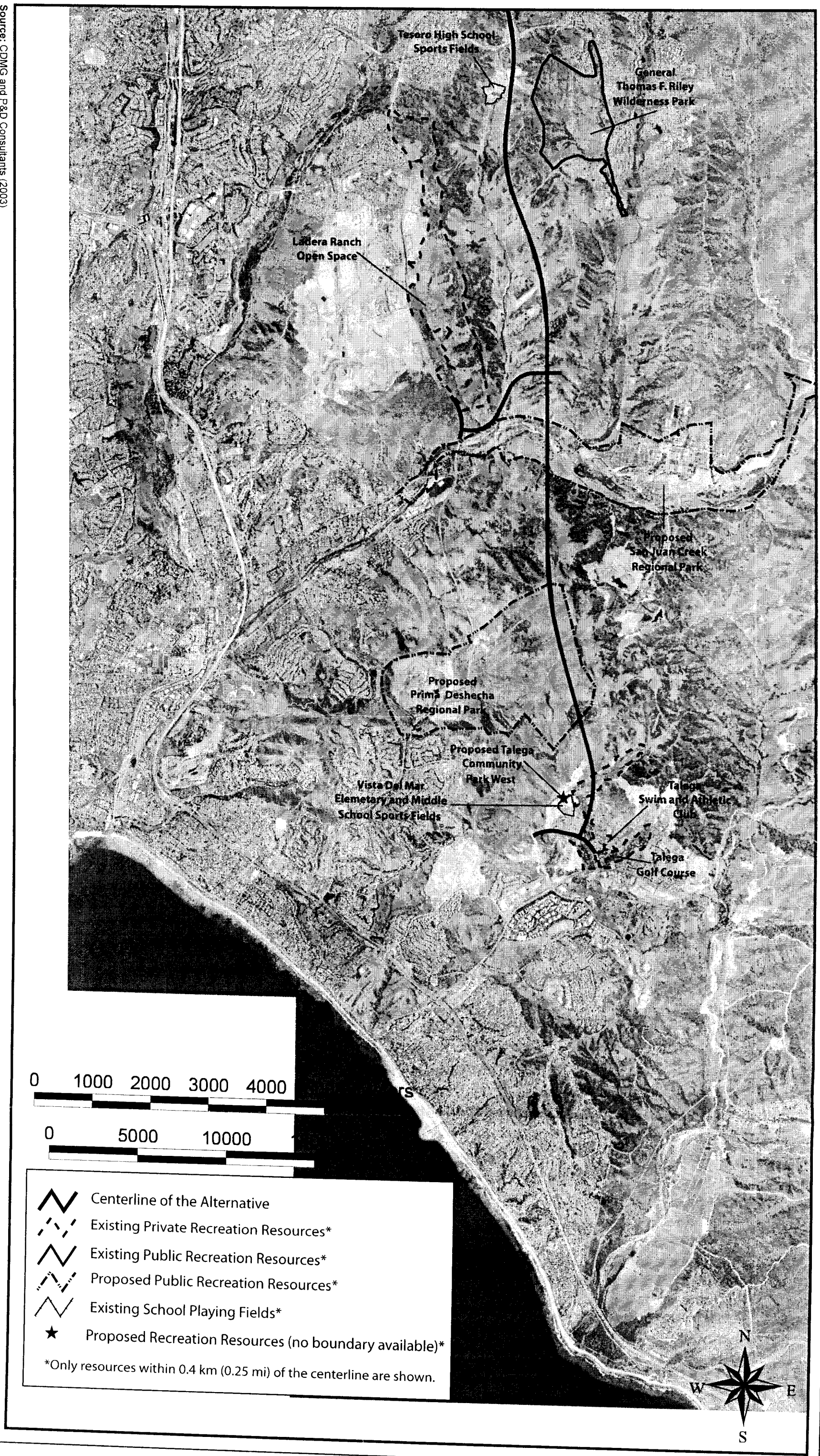
RESOURCE	INDIRECT IMPACTS OF THE CC-ALPV
	Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall southwest of the resource that will partially screen current views of a ridge to the west. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
Proposed Talega Community Park West	At its closest point, this resource is 414 m (1,359 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Proposed San Juan Hills High School Sports Fields	At its closest point, this resource is 187 m (615 ft) from the centerline, 1,595 m (5,232 ft) from structures and 110 m (136 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction and operational noise impacts if this resource is operational during construction and operation of this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource will be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).

TABLE 4.25-22
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE A7C-ALPV ALTERNATIVE

RESOURCE [1]	A7C-ALPV-INITIAL			A7C-ALPV-ULTIMATE		
	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Tesoro High School Sports Fields	0	0	No	0	0	No
General Thomas F. Riley Wilderness Park	0	0	No	0	0	No
Ladera Ranch Open Space	0	0	No	0	0	No
Proposed San Juan Creek Regional Park	3.9 (9.8)	10.1 (24.7)	Yes	5.0 (12.3)	10.5 (26.1)	Yes
Proposed Prima Deshecha Regional Park	5.6 (13.9)	47.0 (116.1)	Yes	4.8 (11.8)	53.9 (133.3)	Yes
Talega Golf Course	1.3 (3.3)	13.5 (33.2)	Yes	0.7 (1.6)	18.2 (45.0)	Yes
Proposed Talega Elementary School Sports Fields	0	0	No	0	0	No
Talega Swim and Athletic Club	0	0	No	0	0	No
Proposed Talega Community Park West	0	0	No	0	0	No

Note: [1] Refer to Figure 4.25-14 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the A7C-ALPV Alternative

Figure 4.25-14

TABLE 4.25-23
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE A7C-ALPV ALTERNATIVE

Resource [1]	Amenities Affected
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Proposed Prima Deshecha Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Talega Golf Course	Fairway, water feature, clubhouse, and parking lot.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-22). Refer to Figure 4.25-14 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-24
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-ALPV ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-ALPV
Tesoro High School Sports Fields	At its closest point, this resource is 103 m (337 ft) from the centerline and 8 m (27 ft) from the disturbance limits of the A7C-ALPV Alternative. Noise: This resource would be subject to construction noise and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall adjacent to the east side of this resource that will screen current views of a ridge to the east. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
General Thomas F. Riley Wilderness Park	At its closest point, this resource is 376 m (1,232 ft) from the centerline and 94 m (309 ft) from the disturbance limits of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. Noise from the construction of this Alternative would impact this resource, but not adversely because it would affect an area that does not have frequent human use. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Ladera Ranch Open Space	At its closest point, this resource is 36 m (119 ft) from the centerline, 142 m (467 ft) from the disturbance limits and 273 m (897 ft) from the structures of this Alternative. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use.

TABLE 4.25-24
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-ALPV ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-ALPV
	Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative would not result in visual impacts to viewers because this resource is not available for recreational or other public uses.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Proposed Prima Deshecha Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Talega Golf Course	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse pile driving, construction and operational noise impacts from this Alternative.

TABLE 4.25-24
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-ALPV ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-ALPV
	Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
Proposed Talega Community Park West	At its closest point, this resource is 489 m (1,604 ft) from the centerline of this Alternative. Noise: This proposed resource would not be subject to adverse operational, pile driving or construction noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Vista Del Mar Elementary and Middle School Sports Fields	At its closest point, this resource is 235 m (771 ft) from the centerline and 155 m (508 ft) from the disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource will not be subject to adverse operational or pile driving noise impacts. This resource would be subject to adverse construction noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall southwest of the resource that will partially screen current views of a ridge to the west. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.

TABLE 4.25-24
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-ALPV ALTERNATIVE

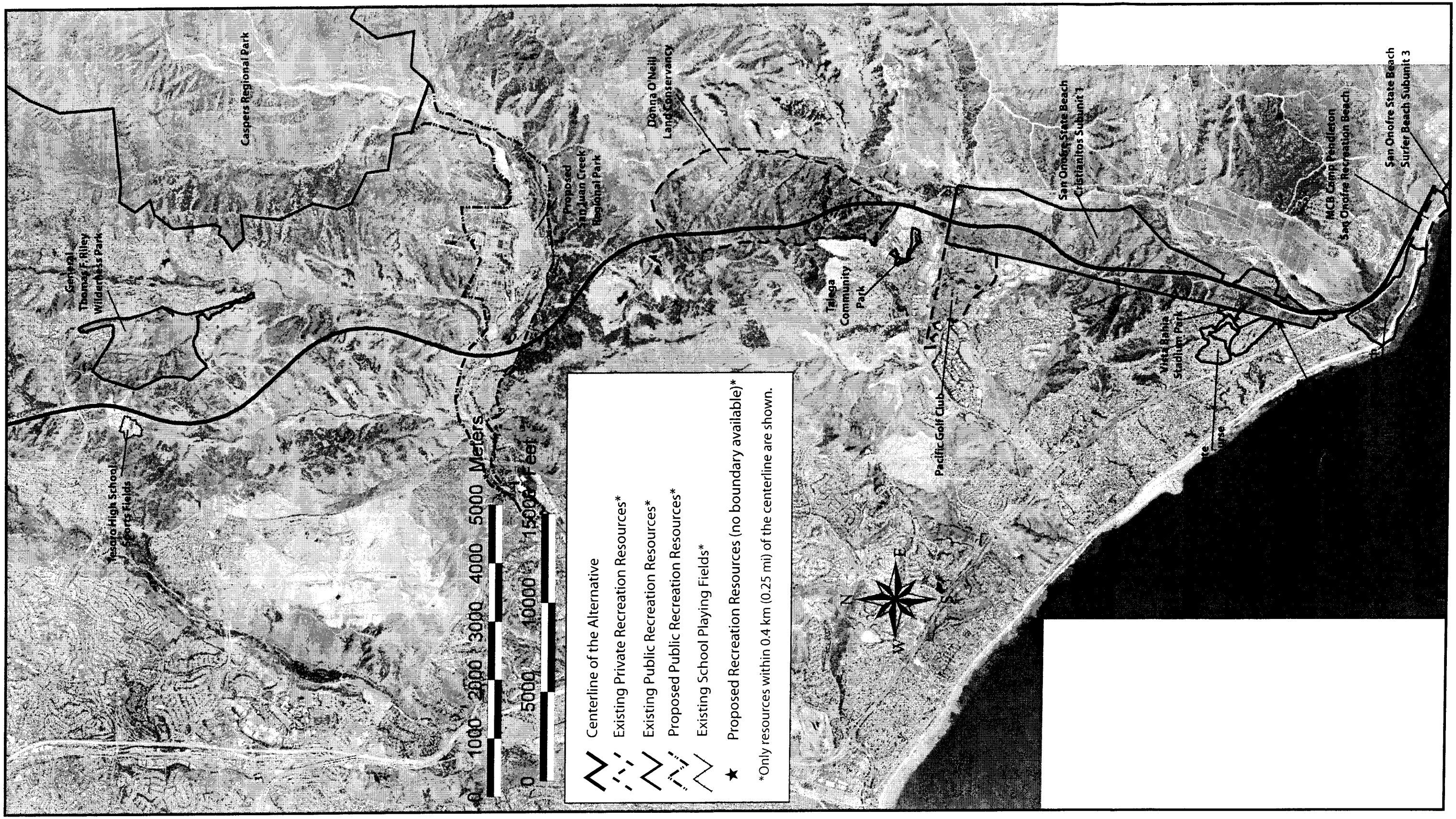
RESOURCE	INDIRECT IMPACTS OF THE A7C-ALPV
Talega Swim and Athletic Club	At its closest point, this resource is 173 m (567 ft) from the centerline and 146 m (480 ft) from the disturbance limits of theA7C-ALPV Alternative. Noise: This resource would be subject to adverse construction noise impacts from this Alternative. Based on the distance from the centerline and structures of this Alternative, no adverse operational or pile driving noise impacts would occur under this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003)

TABLE 4.25-25
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE A7C-FEC-M ALTERNATIVE

RESOURCE [1]	A7C-FEC-M-INITIAL			A7C-FEC-M ULTIMATE		
	Area of Temporary Use ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?	Area of Temporary Use ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Tesoro High School Sports Fields	0	0	No	0	0	No
General Thomas F. Riley Wilderness Park	0	0	No	0	0	No
Caspers Regional Park	0	0	No	0	0	No
Proposed San Juan Creek Regional Park	2.0 (5.1)	8.9 (21.9)	Yes	2.0 (4.8)	10.3 (25.5)	Yes
Donna O'Neill Land Conservancy	65.4 (161.5)	62.0 (153.3)	Yes	67.4 (166.5)	63.4 (156.6)	Yes
Talega Community Park	0	0	No	0	0	No
Pacific Golf Club	0	0	No	0	0	No
SOSB Cristianitos Subunit 1	28.6 (40.8)	117.4 (290.0)	Yes	30.5 (75.4)	122.7 (303.3)	Yes
Vista Bahia Stadium Park	0	0	No	0	0	No
San Clemente Municipal Golf Course	0	0	No	0	0	No
SOSB Trestles Subunit 2	0.4(1.0)	3.5 (8.6)	No	0.4(1.1)	3.5 (8.8)	No
Proposed South San Clemente Neighborhood Park (east)	0	0	No	0	0	No
MCB Camp Pendleton San Onofre Recreation Beach	0	0	No	0	0	No
SOSB Surfer Beach Subunit 3	0	0	No	0	0	No

Note: Refer to Figure 4.25-15 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the A7C-FEC-M Alternative

TABLE 4.25-26
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE A7V-FEC-M ALTERNATIVE

Resource [1]	Amenities Affected
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Donna O'Neill Land Conservancy	Open space.
SOSB Cristianitos Subunit 1	Open space.
SOSB Trestles Subunit 2	Open space between I-5 and access road.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-25). Refer to Figure 4.25-15 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-27
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-FEC-M
Tesoro High School	At its closest point, this resource is 117 m (385 ft) from the centerline and 30 m (97 ft) from the disturbance limits of the A7C-FEC-M Alternative. Noise: This resource would be subject to construction noise and operational noise impacts from this Alternative which would be adverse. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative includes a sound wall adjacent to the east side of this resource that will screen current views of a ridge to the east. However, this impact would not be substantially adverse because the active use of this resource would not be affected by a sound wall.
General Thomas F. Riley Wilderness Park	At its closest point, this resource is 370 m (1,212 ft) from the centerline and 128 m (421 ft) from the disturbance limits of the A7C-FEC-M Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. Noise from the construction of this Alternative would impact this resource, but not adversely because it would affect an area that does not have frequent human use. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this proposed resource would not be adverse because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative.

TABLE 4.25-27
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-FEC-M
	Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: Views from this proposed resource would be substantially affected by this Alternative. Therefore, this would be an adverse impact of this Alternative.
Donna O'Neill Land Conservancy	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this Alternative on this resource would not be adverse because the use is open space and therefore only has periodic frequent human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by private controlled access from Cristianitos Road which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
Talega Community Park	At its closest point, this resource is 336 m (1,101 ft) from the centerline, 173 m (568 ft) from the disturbance limits and 238 m (782 ft) from the structures of the A7C-FEC-M Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction and pile driving noise impacts of this Alternative would be adverse. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.25-27
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-FEC-M
Pacific Golf Club	At its closest point, this resource is 387 m (1,271 ft) from the centerline and 7 m (24 ft) from the disturbance limits of the A7C-FEC-M Alternative. Noise: Based on its distance from centerline and structures of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. This resource would be subject to construction and pile driving noise impacts from this Alternative which would be adverse. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Vista Bahia Stadium Park	At its closest point, this resource is 388 m (1,273 ft) from the centerline, 199 m (652 ft) from the disturbance limits and 368 m (1,207 ft) from the structures of the A7C-FEC-M Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational or construction noise impacts. Construction of this Alternative would result in adverse pile driving noise impacts at this resource. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
San Clemente Municipal Golf Course	At its closest point, this resource is 286 m (938 ft) from the centerline, 178 m (585 ft) from the disturbance limits and 253 m (830 ft) from the structures of the A7C-FEC-M Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. Construction of this Alternative would result in adverse construction and pile driving noise impacts at this resource.

TABLE 4.25-27
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-FEC-M ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE A7C-FEC-M
	Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed South San Clemente Neighborhood Park (east)	At its closest point, this resource is 305 m (1,002 ft) from the centerline and 171 m (560 ft) from the disturbance limits of the A7C-FEC-M Alternative. Noise: This proposed resource would be not subject to adverse operational, construction noise or pile driving noise impacts from this Alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
SOSB Cristianitos Subunit 1	This Alternative is within the boundary of this resource. Noise: This resource would be subject to construction, pile driving and operational noise impacts from this Alternative which would be adverse. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: This resource could potentially experience short term adverse access impacts during construction. Visual: This Alternative will result in changes to views from this resource. Those changes are considered substantially adverse because this Alternative will bring new elements into the viewshed that reduce the quality of existing views.
SOSB Trestles Subunit 2	This Alternative is within the boundary of this resource. Noise: This resource would be subject to pile driving and construction noise impacts from this Alternative which would be adverse. This resource would not be subject to operational impacts because of the design of the Alternatives.

TABLE 4.25-27
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE A7C-FEC-M ALTERNATIVE

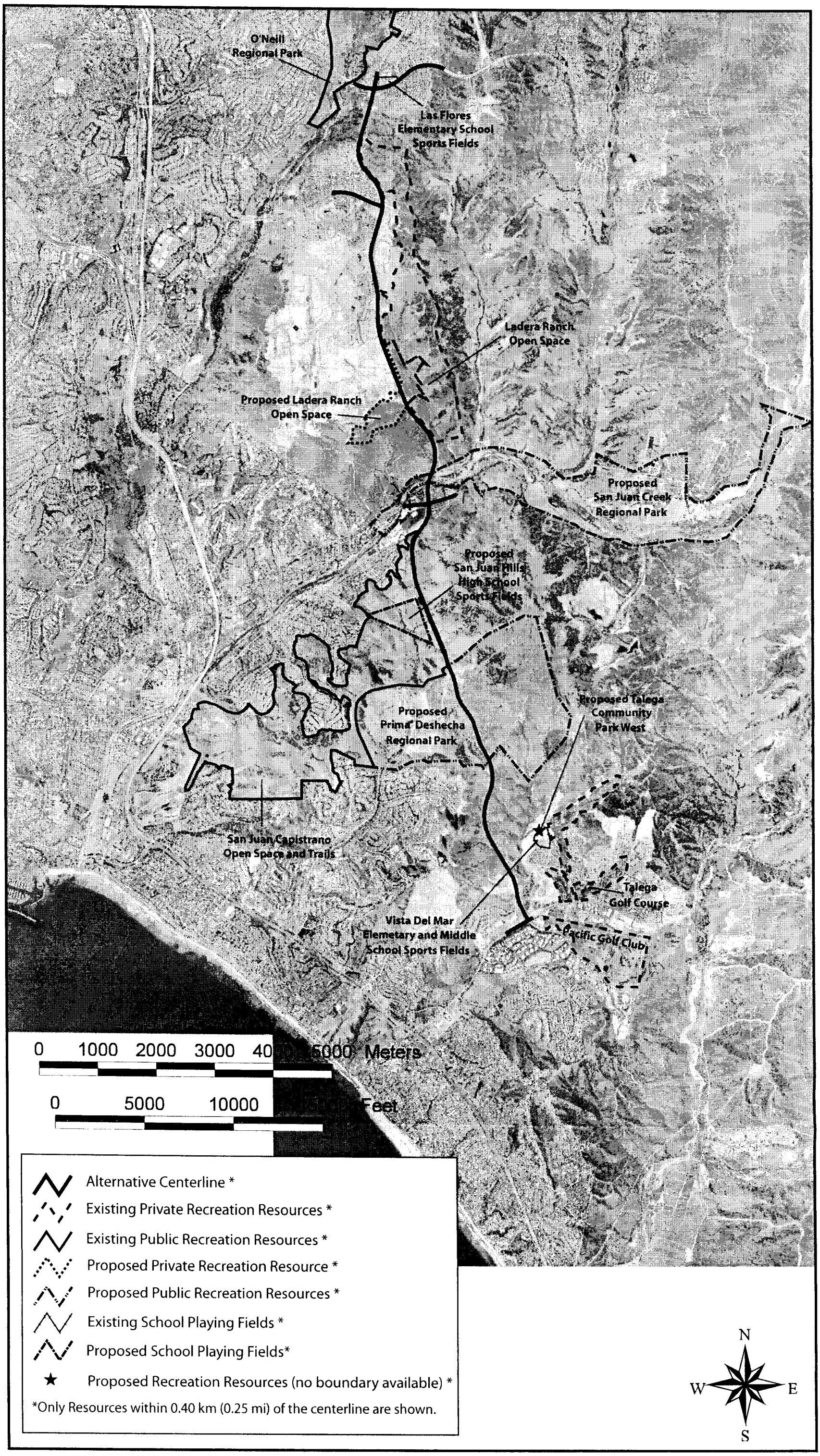
RESOURCE	INDIRECT IMPACTS OF THE A7C-FEC-M
	Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
MCB Camp Pendleton San Onofre Recreation Beach	At its closest point, this resource is 56 m (183 ft) from the centerline, 19 m (63 ft) from the disturbance limits and 32 m (104 ft) from structures of the A7C-FEC-M Alternative. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
SOSB Surfer Beach Subunit 3	At its closest point, this resource is 175 m (575 ft) from the centerline and 124 m (408 ft) from the disturbance limits of the A7C-FEC-M Alternative. Noise: This Alternative would not have any operational impacts on this resource under the FEC-M Ultimate configuration. This resource would be subject to adverse construction noise impacts from this Alternative. This resource would not be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).

TABLE 4.25-28
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

RESOURCE [1]	Area of Temporary Use ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Las Flores Elementary School Sports Fields	2.4 (6.0)	2.2 (5.4)	No
O'Neill Regional Park	0	0	No
Ladera Ranch Open Space	2.5 (6.3)	1.2 (3.0)	No
Proposed Ladera Ranch Open Space	2.2 (5.3)	4.2 (10.4)	Yes
Proposed San Juan Creek Regional Park	0.8 (1.8)	2.1 (5.3)	Yes
San Juan Capistrano Open Space and Trails	9.7 (24.1)	6.1 (15.0)	No
Proposed Prima Deshecha Regional Park	35.0 (86.5)	24.5 (60.6)	Yes
Pacific Golf Club	0	0	No
Proposed Talega Community Park West	0	0	No
Proposed Talega Elementary School Sports Fields	0	0	No
Talega Golf Course	0	0	No

Note: [1] Refer to Figure 4.25-16 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the AIO Alternative

TABLE 4.25-29
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

Resource [1]	Amenities Affected
Las Flores Elementary School Sports Fields	Sports field.
Existing Ladera Ranch Open Space	Open space along Antonio Parkway.
Proposed Ladera Ranch Open Space	Open space along Antonio Parkway.
Proposed San Juan Creek Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
San Juan Capistrano Open Space and Trails	Open space and part of riding trails and parking lot.
Proposed Prima Deshecha Regional Park	Unknown. This is a proposed park and there are no plans available which identify amenities in the area affected by this Alternative.
Proposed San Juan Hills School Sports Fields	Sports fields.

Note: [1] These are resources identified as potentially affected by the temporary occupancy and/or permanent acquisition of property (Table 4.25-28). Refer to Figure 4.25-16 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-30
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE AIO ALTERNATIVE
Las Flores Elementary School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction and pile driving noise impacts from this alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
O'Neill Regional Park	At its closest point, this resource is 37 m (121 ft) from the centerline, 273 m (894 ft) from structures and 25 m (81 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Operational impacts of this Alternative would not be adverse because improvements would not exceed adopted thresholds. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Ladera Ranch Open Space	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative.

TABLE 4.25-30
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE AIO ALTERNATIVE
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative would not result in visual impacts to viewers because this resource is not available for recreational or other public uses.
Proposed Ladera Ranch Open Space	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative would not result in visual impacts to viewers because this resource is not available for recreational or other public uses.
Proposed San Juan Creek Regional Park	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
San Juan Capistrano Open Space and Trails	This Alternative is within the boundary of this resource. Noise: Construction, pile driving and operational noise impacts of this alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative.

TABLE 4.25-30
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE AIO ALTERNATIVE
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Prima Deshecha Regional Park	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Pacific Golf Club	At its closest point, this resource is 197 m (645 ft) from the centerline, 208 m (683 ft) from structures and 92 m (301 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. This resource would be subject to adverse construction and pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.25-30
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE AIO ALTERNATIVE
Proposed Talega Community Park West	At its closest point, this resource is 804 m (2,638 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Vista Del Mar Elementary and Middle School Sports Fields	At its closest point, this resource is 638 m (2,092 ft) from the centerline of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource would not experience adverse operational, construction or pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Talega Golf Course	At its closest point, this resource is 533 m (1,750 ft) from the centerline of this Alternative. Noise: Based on its distance from centerline, structures and disturbance limits of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational, construction or pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-30
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE AIO ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE AIO ALTERNATIVE
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed San Juan Hills High School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction and operational noise impacts if this resource is operational during construction and operation of this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource will be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

Source: P&D Consultants (2003).

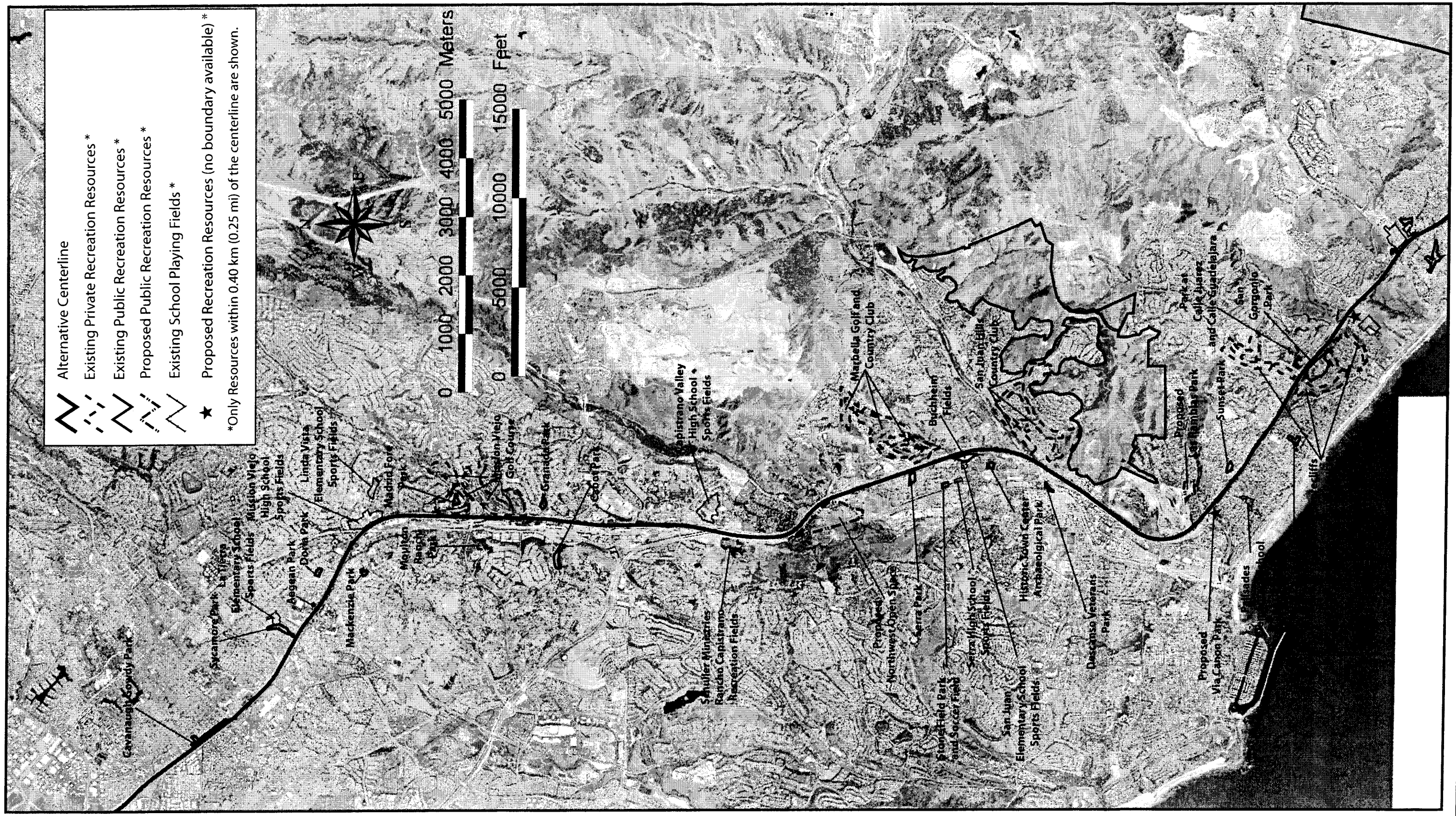
TABLE 4.25-31
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE [1]	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
Cavanaugh Gowdy Park	0	2.2 (5.4)	No
Sycamore Park	0	0	No
La Tierra Elementary School Sports Fields	0	0	No
Aegean Park	0	0.2 (0.4)	No
Doria Park	0	0	No
Mackenzie Park	0	0	No
Mission Viejo High School Sports Fields	0.08(0.2)	0.6 (1.3)	No
Linda Vista Elementary School Sports Fields	0	0	No
Mission Viejo Golf Course	0	1.0 (2.6)	No
Madrid Fore Park	0	0	No
Moulton Ranch Park	0	0	No
Grenada Park	0	0	No
Cabot Park	0	0	No
Capistrano Valley High School Sports Fields	0	0	No
Rancho Capistrano Recreation Fields (Schuller)	0	0.7 (1.8)	No
Proposed Northwest Open Space	0	1.7 (4.1)	No
Serra Park	0	0.08 (0.2)	No
Marbella Golf and Country Club	0	0	No
Stonefield Park and Soccer Field	0	0	No
Serra High School Sports Fields	0	0	No
San Juan Elementary School Sports Fields	0	0	No
Buccheim Fields	0	1.7 (4.1)	No
Historic Town Center Archaeological Park	0	0	No
Descanso Veterans Park	0	0	No
San Juan Hills Country Club	0	0	No
San Juan Capistrano Open Space	0	0	No
Proposed Las Ramblas Park	0	0	No
Proposed Via Canon Park	0	0	No
Palisades Elementary School Sports Fields	0	0	No
Sunset Park	0	0	No
Mira Costa Park	0	0	No
Shorecliffs Golf Course	0	0.4 (0.9)	No
Park at Calle Juarez and Calle Guadalajara	0	0	No
San Gorgonio Park	0	0.8 (2.0)	No
Proposed Marblehead Sports Park	0	0	No
Shorecliffs Middle School Sports Fields	0	0	No

TABLE 4.25-31
TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY FROM RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE [1]	Area of Temporary Occupancy ha (ac)	Area of Permanent Acquisition ha (ac)	Is Resource Fragmented by Alternative?
San Clemente High School Sports Fields	0	2.0 (4.9)	No
Bonito Canyon Park	0	0	No
Ole Hanson Elementary Sports Fields	0	0.1 (0.3)	No
Verde Park	0	0	No
Proposed Our Lady of Fatima Park	0	0	No
San Clemente Municipal Golf Course	0	0	No
San Clemente State Beach	0	0	No
San Luis Rey Park	0	0	No
Concordia Elementary School Sports Fields	0	0	No
Proposed Concordia Park	0	0	No
Proposed South San Clemente Neighborhood Park (west)	0	0	No
Pacific Golf Club	0	0	No
Proposed South San Clemente Neighborhood Park (east)	0	0	No
SOSB Cristianitos Subunit 1	0	1.1 (2.8)	No

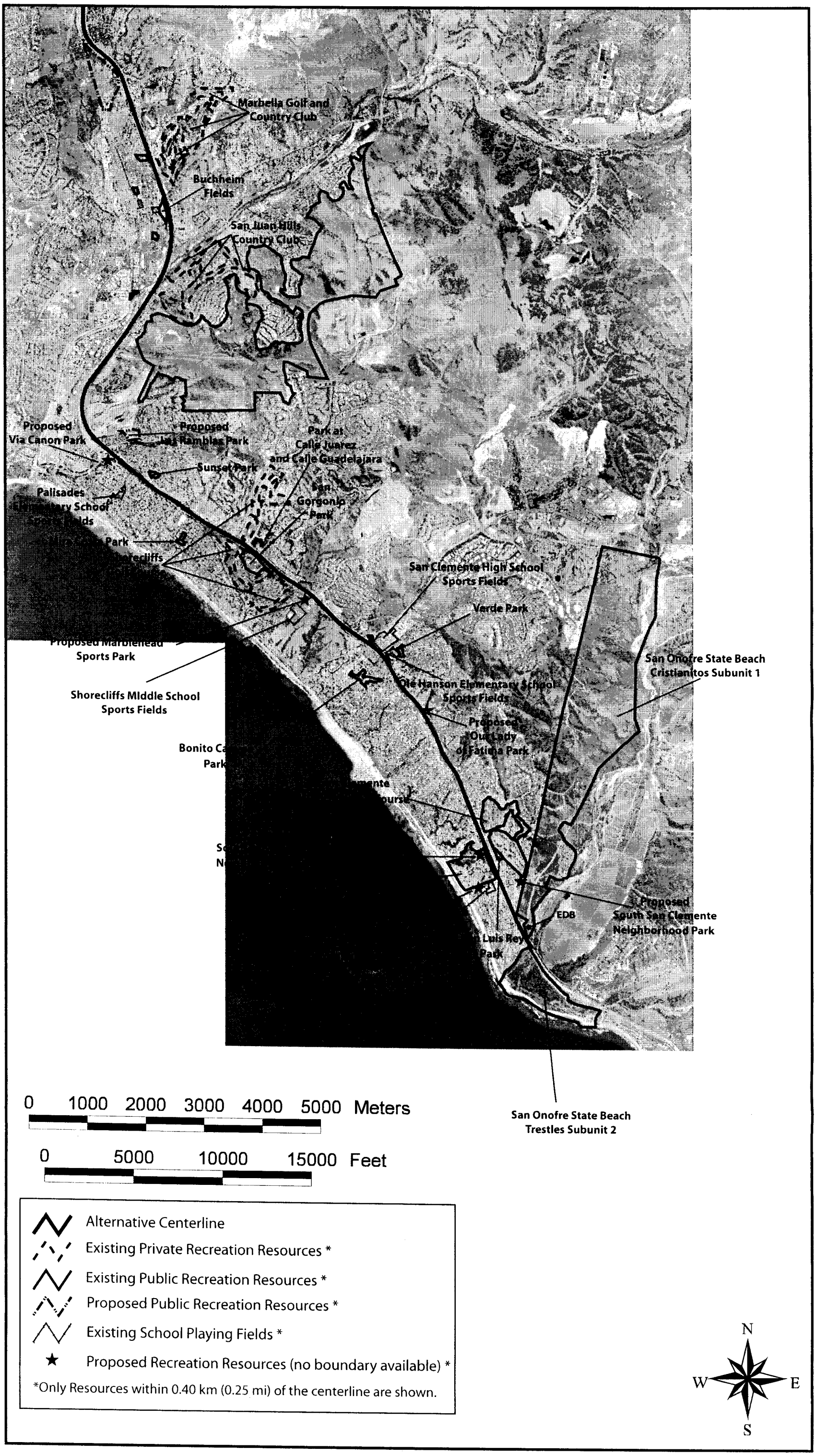
Note: [1] Refer to Figure 4.25-17 for the locations of these resources.
Source: P&D Consultants (2003).



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the I-5 Widening Alternative

(Page 1 of 2)



Source: CDMG and P&D Consultants (2003)

Recreation Resources in the Study Area for the I-5 Widening Alternative

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Figure 4.25-17

TABLE 4.25-32
AMENITIES AFFECTED BY THE TEMPORARY OCCUPANCY AND PERMANENT ACQUISITION OF PROPERTY AT RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

Resource [1]	Amenities Affected
Cavanaugh Gowdy Park	Open space.
Aegean Park	Open space, tot lot and play equipment.
Mission Viejo High School Sports Fields	Baseball field, sports field, track and bleachers.
Mission Viejo Golf Course	Part of rough and cart paths.
Rancho Capistrano Recreation Fields (Schuller)	Landscaping.
Proposed Northwest Open Space	Open space.
Serra Park	Open space and landscaping.
Buccheim Fields	Baseball fields, concession stands, restrooms and playground.
Shorecliffs Golf Course	Part of rough.
San Gorgonio Park	Open space.
San Clemente High School Sports Fields	Baseball field and part of track.
Ole Hanson Elementary School Sports Fields	Part of sports field and playground.
SOSB Cristianitos Subunit 1	Part of parking lot.

Note: [1] These are resources identified as potentially affected by the temporary use and/or permanent acquisition of property (Table 4.25-31). Refer to Figure 4.25-17 for the locations of these resources.

Source: P&D Consultants (2003).

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
Cavanaugh Gowdy Park	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Sycamore Park	At its closest point, this resource is 49 m (162 ft) from the centerline, 319 m (1,048 ft) from structures and 2 m (8 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
La Tierra Elementary School Sports Fields	At its closest point, this resource is 366 m (1,200 ft) from the centerline and 452 m (1,483 ft) from structures of this Alternative. Noise: This resource would be subject to adverse pile driving noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Aegean Park	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Doria Park	At its closest point, this resource is 251 m (822 ft) from the centerline and 198 m (649 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. This resource is too far from structures to be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Mackenzie Park	At its closest point, this resource is 346 m (1,134 ft) from the centerline and 456 m (1,496 ft) from structures of this Alternative. Noise: This resource would be subject to adverse pile driving noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
	Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Mission Viejo High School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Linda Vista Elementary School Sports Fields	At its closest point, this resource is 386 m (1,265 ft) from the centerline of this Alternative. Noise: Based on its distance from centerline, structures and disturbance limits of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational, construction or pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Mission Viejo Golf Course	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative.

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INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
	Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Madrid Fore Park	At its closest point, this resource is 194 m (636 ft) from the centerline, 250 m (821 ft) from structures and 129 m (424 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Moulton Ranch Park	At its closest point, this resource is 401 m (1,315 ft) from the centerline and 352 m (1,155 ft) from structures of this Alternative. Noise: This resource would be subject to adverse pile driving noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

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RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
Granada Park	At its closest point, this resource is 165 m (541 ft) from the centerline and 113 m (372 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Cabot Park	At its closest point, this resource is 393 m (1,289 ft) from the centerline and 202 m (661 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource would be subject to adverse construction noise impacts from this Alternative. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Capistrano Valley High School Sports Fields	At its closest point, this resource is 127 m (418 ft) from the centerline, 276 m (904 ft) from structures and 60 m (196 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

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	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Rancho Capistrano Recreation Fields (Schuller Ministries)	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction and operational noise impacts from this Alternative. This resource is too far from structures to be subject to pile driving noise impacts. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Northwest Open Space	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Serra Park	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

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	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Marbella Golf and Country Club	At its closest point, this resource is 92 m (302 ft) from the centerline, 146 m (480 ft) from structures and 28 m (93 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline, structures and disturbance limits of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. This resource would be subject to adverse construction and pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Stone Field Park and Soccer Field	At its closest point, this resource is 389 m (1,276 ft) from the centerline and 354 m (1,160 ft) from structures of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. This resource would be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: Based on the distance of this resource from the centerline and intervening topography and land uses, this Alternative will not result in adverse visual impacts on this recreation resource.
Serra High School Sports Fields	At its closest point, this resource is 398 m (1,306 ft) from the centerline and 366 m (1,200 ft) from structures of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse operational noise impacts on this recreation resource. This resource would be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

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	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
San Juan Elementary School Sports Fields	At its closest point, this resource is 146 m (480 ft) from the centerline, 175 m (573 ft) from structures and 49 m (161 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Buccheim Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Historic Town Center Archaeological Park	At its closest point, this resource is 219 m (718 ft) from the centerline, 222 m (730 ft) from structures and 70 m (230 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative.

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	Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Descanso Veterans Park	At its closest point, this resource is 194 m (636 ft) from the centerline, 173 m (569 ft) from structures and 119 m (390 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts due to the operation of the Alternatives. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
San Juan Hills Country Club	At its closest point, this resource is 112 m (366 ft) from the centerline, 81 m (264 ft) from structures and 57 m (187 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

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San Juan Capistrano Open Space and Trails	At its closest point, this resource is 200 m (655 ft) from the centerline, 313 m (1,028 ft) from structures and 70 m (229 ft) from the disturbance limits of this Alternative. Noise: Construction, pile driving and operational noise impacts of this alternative on this resource would not be adverse because the use is open space and therefore does not have frequent human use. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Las Ramblas Park	At its closest point, this resource is 349 m (1,145 ft) from the centerline, 333 m (1,091 ft) from structures and 74 m (243 ft) from the disturbance limits of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed Via Canon Park	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource.

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	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Palisades Elementary School Sports Fields	At its closest point, this resource is 278 m (912 ft) from the centerline of this Alternative. Noise: Based on its distance from centerline, structures and disturbance limits of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational, pile driving or construction noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Sunset Park	At its closest point, this resource is 125 m (411 ft) from the centerline and 26 m (85 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse construction and operational noise impacts from this Alternative. This resource is too far from structures to be subject to pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Mira Costa Park	At its closest point, this resource is 342 m (1,122 ft) from the centerline and 424m (1,392 ft) from structures of this Alternative. Noise: Based on the distance of this resource from the centerline and intervening topography, this Alternative will not result in adverse construction or operational noise impacts on this recreation resource. However, this resource is within range to be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from the centerline of this Alternative and intervening topography, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

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	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Shorecliffs Golf Course	This Alternative is within the boundary of this resource. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse operational noise impacts. This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Park at Calle Juarez and Calle Guadalajara	At its closest point, this resource is 162 m (530 ft) from the centerline, 198 m (650 ft) from structures and 98 m (321 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
San Gorgonio Park	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds.

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	Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed Marblehead Sports Park	At its closest point, this resource is 123 m (402 ft) from the centerline 111 m (364 ft) from structures and is within the disturbance limits of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Shorecliffs Middle School Sports Fields	At its closest point, this resource is 260 m (854 ft) from the centerline, 158 m (519 ft) from structures and 115 m (376 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

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RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
San Clemente High School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Bonito Canyon Park	At its closest point, this resource is 227 m (745 ft) from the centerline, 411 m (1,349 ft) from structures and 136 m (445 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts due to operation. This resource would be subject to adverse pile driving noise impacts and adverse construction noise. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Ole Hanson Elementary School Sports Fields	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse construction, pile driving and operational noise impacts from this Alternative. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
Verde Park	At its closest point, this resource is 223 m (731 ft) from the centerline and 169 m (553 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource is too far from structures to be subject to adverse pile driving noise impacts, but would be subject to adverse construction noise. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed Our Lady of Fatima Park	This Alternative is within the boundary of this resource. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
San Clemente Municipal Golf Course	At its closest point, this resource is 83 m (273 ft) from the centerline, 65 m (212 ft) from structures and 14 m (47 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource would be subject to adverse construction and pile driving noise impacts from this Alternative. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
San Clemente State Beach	At its closest point, this resource is 39 m (127 ft) from the centerline, 339 m (1,1,111 ft) from structures and 1 m (3 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
San Luis Rey Park	At its closest point, this resource is 113 m (370 ft) from the centerline and 47 m (154 ft) from disturbance limits of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource is too far from structures to be subject to adverse pile driving noise impacts, but would be subject to adverse construction noise. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Concordia Elementary School Sports Fields	At its closest point, this resource is 124 m (406 ft) from the centerline and 85 m (280 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse operational and construction noise impacts. This resource is too far from structures to be subject to adverse pile driving noise impacts. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
	Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed Concordia Park	At its closest point, this resource is 383 m (1,255 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
Proposed South San Clemente Neighborhood Park (west)	At its closest point, this resource is 126 m (412 ft) from the centerline and 82 m (270 ft) from the disturbance limits of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
SOSB Cristianitos Subunit 1	This Alternative is within the boundary of this resource. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Proposed South San Clemente Neighborhood Park (east)	At its closest point, this resource is 335 m (1,100 ft) from the centerline of this Alternative. Noise: This proposed resource would be not subject to adverse operational, pile driving or construction noise impacts from this alternative because it is a proposed resource and the noise standards do not apply. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is anticipated to be provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative is not visible from this resource due to intervening topography or structures. Therefore, this Alternative will not adversely impact views from this recreation resource.
SOSB Trestles Beach Subunit 2	At its closest point, this resource is 35 m (115 ft) from the centerline and 365 m (1,198 ft) from structures of this Alternative. Noise: Based on its distance from centerline of this Alternative, this resource is outside the 66 CNEL contour and would not experience adverse noise impacts. This resource is would be subject to adverse pile driving noise impacts, but would not be subject to adverse construction noise. Air Quality: Considering the proximity of this resource to the centerline of this Alternative, this resource could potentially experience short term air quality impacts during construction of this Alternative. Transportation: Access to this resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this recreation resource.

TABLE 4.25-33
INDIRECT IMPACTS ON RECREATION RESOURCES UNDER THE I-5 ALTERNATIVE

RESOURCE	INDIRECT IMPACTS OF THE I-5 ALTERNATIVE
	Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
Creekside Park	At its closest point, this resource is 480 m (1,576 ft) from the centerline, 457 m (1,498 ft) from structures and 160 m (527 ft) from disturbance limits of this Alternative. Noise: This resource would be subject to adverse pile driving and construction noise impacts from this Alternative. Operational impacts of this Alternative on this resource would not be adverse because the noise impacts of this Alternative do not exceed adopted noise thresholds. Air Quality: Based on the distance of this resource from centerline of this Alternative, the construction of this Alternative is not anticipated to result in short term adverse air quality impacts on this resource. Transportation: Access to this planned resource is provided by local streets which will not be adversely impacted during construction and operation of this Alternative. Therefore, this Alternative will not adversely impact access to this planned recreation resource. Visual: This Alternative will result in changes in views from this resource. However, those changes are not adverse because views are not substantially changed from existing conditions.
The following recreation resources are close enough to pile driving activities to experience adverse pile driving noise impacts. They are out of range for any other indirect impacts associated with the I-5 Alternative.	
Clarington Park	This resource is 405 m (1,328 ft) from structures of this Alternative and would be subject to adverse pile driving noise impacts.
Knotty Pine Park	This resource is 470 m (1,545 ft) from structures of this Alternative and would be subject to adverse pile driving noise impacts.
La Paz Middle School Sports Fields	This resource is 379 m (1,246 ft) from structures of this Alternative and would be subject to adverse pile driving noise impacts.
El Camino Real Park	This resource is 443 m (1,453 ft) from structures of this Alternative and would be subject to adverse pile driving noise impacts.

Source: P&D Consultants (2003).

TABLE 4.25-34
PROPOSED STATUS OF MITIGATION MEASURES FROM THE MITIGATION MONITORING PROGRAM IN EIR NO. 3

Measure 46: Project final design plans shall provide for crossings of planned lateral Class I and existing and planned Class II bicycle trails, as well as hiking and equestrian trails at master planned locations across the corridor. The trail crossings shall be designed and constructed according to the standards of Caltrans and applicable local jurisdictions.	This measure has been incorporated in current measures R-5.
Measure 47: In conjunction with final design, the TCA shall coordinate with the County of Orange EMA/Transportation Planning, EMA/Harbors, Beaches and Parks, City of San Clemente, and California Department of Parks and Recreation to minimize potential disruptions to existing and proposed bicycle, riding and hiking trails.	This measure has been incorporated in current measure R-5.
Measure 48: In conjunction with final design, the TCA shall coordinate with the appropriate agencies, including the EMA/Harbors, Beaches and Parks; the California Department of Parks and Recreation; and the City of San Clemente to minimize any visual impacts to parks, recreation, and open space area by using berms, landscaping, vertical separation, and/or other similar techniques	Mitigation measures included in the Visual Impact Assessment Technical Report address potential adverse impacts on recreation resources. Refer to the VIA for those measures and their applicability along the alignments of each of the build Alternatives.

Source: P&D Consultants (2003).

TABLE 4.25-35
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE FEC-W AND FEC-M ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)	
	FEC-W Alternative	FEC-M Alternative
Tesoro High School Sports Fields	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.
General Thomas F. Riley Wilderness Park	No mitigation required.	No mitigation required.
Caspers Regional Park	No mitigation required.	No mitigation required.
Proposed San Juan Creek Regional Park	AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
Donna O'Neill Land Conservancy	R-1, R-2, R-3 and R-4. AS-1, AS-2, AS-3 and AS-4.	R-1, R-2, R-3 and R-4. AS-1, AS-2, AS-3 and AS-4.
Talega Community Park	N-1, N-2 and N-4. AS-1, AS-2, AS-3 and AS-4.	N-1, N-2 and N-4. AS-1, AS-2, AS-3 and AS-4.
Pacific Golf Club	N-1, N-2 and N-4.	N-1, N-2 and N-4.
SOSB Cristianitos Subunit 1	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
Vista Bahia Stadium Park	N-1, N-2 and N-4.	N-1, N-2 and N-4.
San Clemente Municipal Golf Course	N-1, N-2 and N-4.	N-1, N-2 and N-4.
SOSB Trestles Subunit 2	R-1, R-2, R-3 and R-4. N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.	R-1, R-2, R-3 and R-4. N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.
MCB Camp Pendleton San Onofre Recreation Beach	N-1, N-2, N-4, N-7, N-8, N-9 and N-10.	N-1, N-2, N-4, N-7, N-8, N-9 and N-10.
SOSB Surfer Beach Subunit 3	I and U: N-1, N-2 and N-4. U: N-7, N-8, N-9 and N-10.	I and U: N-1, N-2 and N-4. U: N-7, N-8, N-9 and N-10.

Notes:

1. Not applicable: This resource does not occur in the vicinity of this Alternative and would not be impacted by this Alternative.
2. No mitigation required: This resource will not be adversely impacted by this Alternative. No mitigation is required.
3. The complete text for measures R-1 to R-5 is provided in Section 4.25.4 (Mitigation Measures Related to Recreation Resources).
4. Construction and operations noise mitigation measures are provided in Section 4.6.
5. Visual impacts mitigation measures are provided in Section 4.18.
6. Air quality impacts construction mitigation is provided in Section 4.7.

Source: P&D Consultants (2003).

TABLE 4.25-36
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE CC AND CC-ALPV ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See Notes, below)	
	CC Alternative	CC-ALPV Alternative
Tesoro High School Sports Fields	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.
General Thomas F. Riley Wilderness Park	No mitigation required.	No mitigation required.
Ladera Ranch Open Space	No mitigation required.	No mitigation required.
Proposed San Juan Creek Regional Park	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
San Juan Capistrano Open Space and Trails	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.
Proposed Prima Deshecha Regional Park	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
Talega Golf Course	N-1, N-2 and N-4.	N-1, N-2 and N-4.
San Clemente High Sports Fields	R-1, R-2, R-3 and R-4. N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.	Not applicable.
Ole Hanson Elementary School Sports Fields	R-1, R-2, R-3 and R-4. N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.	Not applicable.
Verde Park	N-1, N-2 and N-4.	Not applicable.
Bonito Canyon Park	N-1, N-2 and N-4.	Not applicable.
SOSB Cristianitos Subunit 1	R-1, R-2, R-3 and R-4.N-1, N-2 and N-4.	
San Clemente Municipal Golf Course	N-1, N-2 and N-4.	Not applicable.
San Clemente State Beach	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10.	Not applicable.
Proposed South San Clemente Neighborhood Park (east)	No mitigation required.	Not applicable.
Proposed South San Clemente Neighborhood Park (west)	No mitigation required.	Not applicable.
Proposed Our Lady of Fatima Park	AQ-1, AQ-2 and AQ-3.	Not applicable.
Proposed Talega Community Park West	AS-1, AS-2, AS-3 and AS-4.	AS-1, AS-2, AS-3 and AS-4.
Vista Del Mar Elementary and Middle School Sports Fields	N-1, N-2, N-3 and N-4.	N-1, N-2, N-3 and N-4.
Proposed Marblehead Sports Park	No mitigation required.	Not applicable.

TABLE 4.25-36
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE CC AND CC-ALPV ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See Notes, below)	
	CC Alternative	CC-ALPV Alternative
Shorecliffs Middle School Sports Fields	No mitigation required.	Not applicable.
Proposed Concordia Park	No mitigation required.	Not applicable.
Concordia Elementary School Sports Fields	N-1, N-2, N-3 and N-4.	Not applicable.
San Luis Rey Park	N-1, N-2 and N-4.	Not applicable.

Notes:

1. Not applicable: This resource does not occur in the vicinity of this Alternative and would not be impacted by this Alternative.
2. No mitigation required: This resource will not be adversely impacted by this Alternative. No mitigation is required.
3. The complete text for measures R-1 to R-5 is provided in Section 4.25.4 (Mitigation Measures Related to Recreation Resources).
4. Construction and operations noise mitigation measures are provided in Section 4.6.
5. Visual impacts mitigation measures are provided in Section 4.18.
6. Air quality impacts construction mitigation is provided in Section 4.7.

Source: P&D Consultants (2003).

TABLE 4.25-37
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE A7C-ALPV AND A7C-FEC-M ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)	
	A7C-ALPV Alternative	A7C-FEC-M Alternative
Tesoro High School Sports Fields	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.
General Thomas F. Riley Wilderness Park	AS-1, AS-2, AS-3 and AS-4.	AS-1, AS-2, AS-3 and AS-4.
Ladera Ranch Open Space	No mitigation required.	Not applicable.
Proposed San Juan Creek Regional Park	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
Proposed Prima Deshecha Regional Park	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	No mitigation required.
Talega Golf Course	R-1, R-2, R-3 and R-4. N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.	Not applicable.
Vista Del Mar Elementary and Middle School Sports Fields	N-1, N-2, N-3 and N-4.	Not applicable.
Proposed Talega Community Park West	No mitigation required.	Not applicable.
Talega Swim and Athletic Club	N-1, N-2 and N-4. AS-1, AS-2, AS-3 and AS-4.	Not applicable.
Talega Community Park	Not applicable.	N-1, N-2 and N-4.
Donna O'Neill Land Conservancy	Not applicable.	AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
Pacific Golf Club	Not applicable.	N-1, N-2, N-4, N-7, N-8, N-9 and N-10.
Proposed South San Clemente Neighborhood Park (east)	Not applicable.	No mitigation required.
San Clemente Municipal Golf Course	Not applicable.	N-1, N-2 and N-4.
SOSB Cristianitos Subunit 1	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3. AS-1, AS-2, AS-3 and AS-4.
Vista Bahia Stadium Park	Not applicable.	N-1, N-2 and N-4.
SOSB Trestles Subunit 2	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
MCB Camp Pendleton San Onofre Recreation Beach	Not applicable.	N-1, N-2, N-4, N-7, N-8, N-9 and N-10.
SOSB Surfer Beach Subunit 3	Not applicable.	I and U: N-1, N-2 and N-4. U: N-7, N-8, N-9 and N-10.

Notes:

1. Not applicable: This resource does not occur in the vicinity of this Alternative and would not be impacted by this Alternative.
2. No mitigation required: This resource will not be adversely impacted by this Alternative. No mitigation is required.
3. The complete text for measures R-1 to R-5 is provided in Section 4.25.4 (Mitigation Measures Related to Recreation Resources).
4. Construction and operations noise mitigation measures are provided in Section 4.6.
5. Visual impacts mitigation measures are provided in Section 4.18.
6. Air quality impacts construction mitigation is provided in Section 4.7.

Source: P&D Consultants (2003).

TABLE 4.25-38
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE AIO AND I-5 ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)	
	AIO Alternative	I-5 Alternative
Cavanaugh Gowdy Park	Not applicable.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3. N-1, N-2 and N-4.
Sycamore Park	Not applicable.	N-1, N-2 and N-4.
La Tierra Elementary School Sports Fields	Not applicable.	N-1, N-2, N-3 and N-4.
Aegean Park	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Doria Park	Not applicable.	N-1, N-2 and N-4.
Mackenzie Park	Not applicable.	N-1, N-2 and N-4.
Mission Viejo High School Sports Fields	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Linda Vista Elementary School Sports Fields	Not applicable.	No mitigation required.
Mission Viejo Golf Course	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Madrid Fore Park	Not applicable.	N-1, N-2 and N-4.
Las Flores Elementary School Sports Field	R-1, R-2, R-3 and R-4. N-1, N-2, N-3 and N-4. AQ-1, AQ-2 and AQ-3.	Not applicable.
O'Neill Regional Park	N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.	Not applicable.
Ladera Ranch Open Space	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.	Not applicable.
Proposed Ladera Ranch Open Space	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.	Not applicable.
Moulton Ranch Park	Not applicable.	N-1, N-2 and N-4.
Cabot Park	Not applicable.	N-1, N-2 and N-4.
Granada Park	Not applicable.	N-1, N-2 and N-4.
Capistrano Valley High School Sports Fields	Not applicable.	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.
Rancho Capistrano Recreation Fields (Schuller)	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Proposed Northwest Open Space	Not applicable.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.
Serra Park	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Marbella Golf and Country Club	Not applicable.	N-1, N-2 and N-4.

TABLE 4.25-38
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE AIO AND I-5 ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)	
	AIO Alternative	I-5 Alternative
Stonefield Park and Soccer Field	Not applicable.	N-1, N-2 and N-4.
Serra High School Sports Fields	Not applicable.	N-1, N-2, N-3 and N-4.
San Juan Elementary School Sports Fields	Not applicable.	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.
Buccheim Fields	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Proposed San Juan Creek Regional Park	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.	Not applicable.
Historic Town Center Archeological Park	Not applicable.	N-1, N-2 and N-4.
Descanso Veterans Park	Not applicable.	N-1, N-2 and N-4.
San Juan Hills Country Club	Not applicable.	N-1, N-2 and N-4.
San Juan Capistrano Open Space and Trails	R-1, R-2, R-3, R-4 and R-5. AQ-1, AQ-2 and AQ-3.	No mitigation required.
Proposed Prima Deshecha Regional Park	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.	Not applicable.
Proposed Las Ramblas Park	Not applicable.	No mitigation required.
Proposed Via Canon Park	Not applicable.	R-1, R-2, R-3 and R-4. AQ-1, AQ-2 and AQ-3.
Palisades Elementary School Sports Field	Not applicable.	No mitigation required.
Sunset Park	Not applicable.	N-1, N-2, N-4, N-7, N-8, N-9 and N-10.
Mira Costa Park	Not applicable.	N-1, N-2 and N-4.
Shorecliffs Golf Club	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.
Park at Calle Juarez and Calle Guadalajara	Not applicable.	N-1, N-2 and N-4.
San Gorgonio Park	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.
Proposed Marblehead Sports Park	Not applicable.	No mitigation required.
Shorecliffs Middle School Sports Fields	Not applicable.	N-1, N-2, N-3 and N-4.
San Clemente High School Sports Fields	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Bonito Canyon Park	Not applicable.	N-1, N-2 and N-4.
Ole Hanson Elementary School Sports Fields	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10. AQ-1, AQ-2 and AQ-3.
Verde Park	Not applicable.	N-1, N-2 and N-4.
Proposed Our Lady of Fatima Park	Not applicable.	AQ-1, AQ-2 and AQ-3.
San Clemente Municipal Golf Course	Not applicable.	N-1, N-2 and N-4.

TABLE 4.25-38
APPLICABILITY OF MITIGATION MEASURES BY RECREATION RESOURCE FOR THE AIO AND I-5 ALTERNATIVES

NAME OF RESOURCE	MITIGATION MEASURES APPLICABLE BY ALTERNATIVE (See notes, below)	
	AIO Alternative	I-5 Alternative
San Clemente State Beach	Not applicable.	N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.
San Luis Rey Park	Not applicable.	AQ-1, AQ-2 and AQ-3.
Concordia Elementary School Sports Fields	Not applicable.	N-1, N-2, N-3, N-4, N-7, N-8, N-9 and N-10.
Proposed Concordia Park	Not applicable.	No mitigation required.
Proposed South San Clemente Neighborhood Park (west)	Not applicable.	No mitigation required.
Proposed South San Clemente Neighborhood Park (east)	Not applicable.	No mitigation required.
Pacific Golf Club	N-1, N-2 and N-4.	Not applicable.
SOSB Cristianitos Subunit 1	Not applicable.	R-1, R-2, R-3 and R-4. N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.
SOSB Trestles Subunit 2	Not applicable.	N-1, N-2 and N-4. AQ-1, AQ-2 and AQ-3.
Proposed Talega Community Park West	No mitigation required.	Not applicable.
Vista Del Mar Elementary and Middle School Sports Fields	N-1, N-2, N-3 and N-4.	Not applicable.
Talega Golf Course	No mitigation required.	Not applicable.
Creekside Park	Not applicable.	N-1, N-2 and N-4.
Clarington Park	Not applicable.	N-1, N-2 and N-4.
Knotty Pine Park	Not applicable.	N-1, N-2 and N-4.
La Paz Middle School Sports Fields	Not applicable.	N-1, N-2, N-3 and N-4.
El Camino Real Park	Not applicable.	N-1, N-2 and N-4.

Notes:

1. Not applicable: This resource does not occur in the vicinity of this Alternative and would not be impacted by this Alternative.
2. No mitigation required: This resource will not be adversely impacted by this Alternative. No mitigation is required.
3. The complete text for measures R-1 to R-5 is provided in Section 4.25.4 (Mitigation Measures Related to Recreation Resources).
4. Construction and operations noise mitigation measures are provided in Section 4.6.
5. Visual impacts mitigation measures are provided in Section 4.18.
6. Air quality impacts construction mitigation is provided in Section 4.7.

Source: P&D Consultants (2003).

4.26 UNAVOIDABLE ADVERSE IMPACTS

4.26.1 UNAVOIDABLE ADVERSE IMPACTS RELATED TO TRAFFIC

The following SOCTIIP build Alternatives would result in unavoidable adverse impacts related to traffic and circulation which cannot be fully mitigated:

- CC Alternative: deficiencies at one intersection and two 1-5 ramps.
- CC-ALPV Alternative: deficiencies at two I-5 ramps.
- A7C-ALPV Alternative: deficiencies at one intersectional and one I-5 ramp.
- AIO Alternative: deficiencies at five intersections and one I-5 ramp.
- I-5 Alternative: deficiencies at two intersections and three I-5 ramps.

The FEC-M, FEC-W and A7C-FEC-M Alternatives will not result in unavoidable adverse impacts related to traffic and circulation that cannot be mitigated.

The SOCTIIP build Alternatives would result in short-term unavoidable adverse impacts related to traffic and circulation which can not be fully mitigated. During the construction related activities, it is possible that some streets may experience substantial short term degradation in terms of level of service (LOS), congestion and delays.

The No Action Alternative was analyzed with four scenarios providing future "baseline" for the overall traffic analysis in that they portray future conditions in which only committed improvements are built or in which committed plus MPAH/RTP improvements are built but without the extension of existing SR 241. As demonstrated in Section 3.0 (Traffic and Circulation), the regional circulation system will not be adequate to meet traffic demands or applicable performance criteria under any of the four No Action Scenarios. Therefore, the No Action Alternatives will result in unavoidable adverse impacts related to traffic and circulation.

4.26.2 UNAVOIDABLE ADVERSE IMPACTS RELATED TO LAND USE

The following SOCTIIP build Alternatives would result in adverse impacts related to land use which cannot be fully mitigated. For each of these Alternatives, the adverse impact following mitigation would be conflict(s) with an adopted land use plan, plan policy or regulation of an agency with jurisdiction over the project.

- FEC-M Alternative
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.
- A7C-ALPV Alternative.
- A7C-FEC-M Alternative.
- AIO Alternative.
- I-5 Alternative.

The two No Action Alternatives will not result in direct or indirect land use impacts because they will not result in the construction of any SOCTIIP related transportation improvements in the study area. The No Action Alternatives are not anticipated to affect planned land uses because the applicable local jurisdictions have required or will require those uses to include sufficient transportation facilities to meet their needs, independent of the SOCTIIP alternatives. It should be noted that impacts related to build out of the RMV – 14,000 du development or OCP-2000 growth assumptions are discussed in Section 6.0.

County of Orange (Rancho Mission Viejo)

It is expected that RMV will develop with or without the SOCTIIP build Alternatives. Any development plan for the RMV is assumed to include sufficient transportation facilities to meet the circulation needs of the plan. Therefore, no unavoidable adverse impacts to future planned land uses on RMV will occur under the SOCTIIP No Action Alternatives.

City of San Clemente

Improvements consistent with the MPAH and the build out of the Champion Hills, Rolling Hills and Forster Ranch PCs will occur in this City under the No Action Alternatives. The No Action Alternatives will not result in unavoidable adverse impacts related to the ability of these projects to continue to develop, consistent with applicable local approvals.

City of San Juan Capistrano

Improvements consistent with the MPAH and the build out of Forster Canyon PC/Pacific Point and the Prima Deshecha Sanitary Landfill GDP will occur in this City under the No Action Alternatives. The No Action Alternatives will not result in unavoidable adverse impacts related to the ability of these projects to develop, consistent with applicable local approvals.

Other Cities

Improvements consistent with the MPAH and other planned development in the other cities in the SOCTIIP study area would continue to occur in these jurisdictions under the No Action Alternatives. The No Action Alternatives will not result in unavoidable adverse impacts related to the ability of these projects to develop, consistent with applicable local approvals.

Camp Pendleton

Improvements on Camp Pendleton in the SOCTIIP study area would continue to occur under the No Action Alternatives. The No Action Alternatives will not result in unavoidable adverse impacts related to the ability of the DON to continue to implement land use on the Base, consistent with the Master Plan and the mission of Camp Pendleton.

San Onofre State Beach

Improvements to SOSB in the SOCTIIP study area would continue to occur under the No Action Alternatives. The No Action Alternatives will not result in unavoidable adverse impacts related to the ability of the California Department of Parks and Recreation to continue to implement land uses in the Park, consistent with the Master Plan and the Department's lease with the United States of America.

4.26.3 UNAVOIDABLE ADVERSE IMPACTS RELATED TO FARMLAND

The following SOCTIIP build Alternatives would result in adverse impacts related to farmland which cannot be fully mitigated. For each of these Alternatives, the adverse impacts following mitigation would be:

- Conversion of farmland to a non-agricultural use.
- Conflict with zoning for agricultural use or Williamson Act contract.
- Changes in the environment which could result in conversion of farmland to a non-agricultural use.

The Alternatives which result in these unavoidable adverse impacts after mitigation are:

- FEC-M Alternative.
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.
- A7C-FEC-M Alternative.
- A7C-ALPV Alternative.
- AIO Alternative.

The No Action Alternatives will not result in unavoidable adverse impacts related to farmland.

4.26.4 UNAVOIDABLE ADVERSE IMPACTS RELATED TO SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The following SOCTIIP build Alternatives would result in adverse impacts related to socioeconomics and environmental justice which cannot be fully mitigated:

- CC Alternative: Divide neighborhoods, displace community facilities, result in greater than 1% reduction in property tax and displace commercial uses and lodging rooms impacting sales tax and transit occupancy tax revenues.

- I-5 Alternative: Displaces community facilities, results in greater than 1% reduction in property tax and displaces commercial uses and lodging rooms impacting sales tax and transit occupancy tax revenues.

The foregone economic benefits of congestion relief, i.e., the value of time saved and increased economic activity from improved mobility for people, goods and services, will be an unavoidable impact of the No Action Alternative.

4.26.5 UNAVOIDABLE ADVERSE IMPACTS RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

The following Alternatives would result in short term adverse air quality impacts during construction which cannot be fully mitigated:

- FEC-M Alternative.
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.
- A7C-FEC-M Alternative.
- A7C-ALPV Alternative.

The following Alternatives would result in adverse impacts related to visual resources along pedestrian and bicycle facilities which cannot be fully mitigated:

- FEC-M Alternative.
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.
- A7C-FEC-M Alternative.
- A7C-ALPV Alternative.

4.26.6 UNAVOIDABLE ADVERSE IMPACTS RELATED TO NOISE

The I-5 Alternative would result in an unavoidable adverse impact due to demolition noise to nearby residents. None of the SOCTIIP build Alternatives would result in adverse impacts related to operational noise which cannot be fully mitigated. Because the No Action Alternatives will not result in the construction or implementation of SOCTIIP Infrastructure improvements in the study area, the No Action Alternatives will not result in unavoidable adverse impacts related to noise.

4.26.7 UNAVOIDABLE ADVERSE IMPACTS RELATED TO AIR QUALITY

The following Alternatives will have short term adverse air quality impacts during construction which cannot be fully mitigated:

- FEC-M Alternative.
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.

- A7C-FEC-M Alternative.
- A7C-ALPV Alternative.
- AIO Alternative.
- I-5 Alternative.

The following Alternatives would result in adverse operations impacts which cannot be fully mitigated related to NO_x that exceed the SCAQMD thresholds:

- FEC-M Alternative:
- FEC-W Alternative:
- CC Alternative.
- CC-ALPV Alternative.
- A7C-ALPV Alternative.
- A7C-FEC-M Alternative:
- AIO Alternative.
- I-5 Alternative.

The No Action Alternative – RMV Development Plan will have unavoidable adverse impacts due to PM_{10} emissions that exceed the SCAQMD threshold.

The subregional emissions from the SOCTIIP build Alternatives have been compared to the No Action Alternative and to the existing emissions. The determinations of impacts have been based on both of these types of comparisons. Both of these comparisons are necessary because the air environment is not a stagnant situation, but rather will change in future years irrespective of the proposed SOCTIIP. For all cases the subregional/regional emissions will be lower in the future with the build Alternatives. This reduction in emissions is not necessarily attributable to the build Alternatives, but rather the general trend in emissions due to cleaner motor vehicles and tighter controls on other sources. The comparison of the build Alternatives to the No Action Alternatives generally shows a decrease in HC and CO emissions and an increase in NO_x and PM_{10}. Therefore, due to the increase in HC and CO emissions, the No Action Alternatives will result in an unavoidable adverse impact related to air quality.

Converse to the SOCTIIP build alternatives, the No Action Alternatives retain a large number of vehicles on the arterials where the travel speeds are much lower than that for the SOCTIIP Alternatives. Emission rates for HC and CO are higher at these travel speeds 33 kph (20 mph) compared to 100 kph (60 mph) range and result in an increase in emissions compared to the SOCTIIP build alternatives. This is an environmental impact that results by not moving vehicles more efficiently at higher speeds.

4.26.8 UNAVOIDABLE ADVERSE IMPACTS RELATED TO FLOODPLAINS, WATERWAYS AND HYDROLOGIC SYSTEMS

The SOCTIIP build Alternatives would not result in adverse impacts related to floodplains, waterways and hydrologic systems which cannot be fully mitigated with the project design features (PDFs) implemented to limit these impacts.

The No Action Alternatives will not result in the construction or implementation of SOCTIIP infrastructure improvements in the study area. Therefore, the No Action Alternatives will not result in unavoidable adverse impacts related to floodplains, waterways and hydrologic systems.

4.26.9 UNAVOIDABLE ADVERSE IMPACTS RELATED TO WATER QUALITY

None of the SOCTIIP build Alternatives would result in adverse impacts related to water quality which cannot be fully mitigated.

The No Action Alternatives will not result in the construction or implementation of SOCTIIP infrastructure improvements in the study area. Therefore, the No Action Alternatives will not result in unavoidable adverse impacts related to water quality.

4.26.10 UNAVOIDABLE ADVERSE IMPACTS RELATED TO WETLANDS AND WATERS OF THE UNITED STATES

None of the SOCTIIP build Alternatives would result in adverse impacts related to wetlands and waters of the United States which cannot be fully mitigated.

4.26.11 UNAVOIDABLE ADVERSE IMPACTS RELATED TO WILDLIFE, FISHERIES AND VEGETATION

The following SOCTIIP build Alternatives would result in adverse impacts related to wildlife, fisheries and vegetation which cannot be fully mitigated:

- FEC-W Alternative: Impacts to six plant communities and six plant species.
- FEC-M Alternative: Impacts to six plant communities and six plant species.
- CC Alternative: Impacts to six plant communities and four plant species.
- CC-ALPV Alternative: Impacts to five plant communities and four plant species.
- A7C-FEC-M Alternative: Impacts to six plant communities and five plant species.
- A7C-ALPV Alternative: Impacts to five plant communities and six plant species.
- AIO Alternative: Impacts to four plant communities.
- I-5 Alternative: Impacts to two plant communities.

4.26.12 UNAVOIDABLE ADVERSE IMPACTS RELATED TO THREATENED AND ENDANGERED SPECIES

The following SOCTIIP build Alternatives would result in adverse impacts related to threatened and endangered species which cannot be fully mitigated:

- FEC-W Alternative: Impacts to one plant species, one toad species and one bird species.
- FEC-M Alternative: Impacts to one plant species, one toad species and one bird species.
- CC Alternative: Impacts to one toad species and one bird species.
- CC-ALPV Alternative: Impacts to one toad species and one bird species.
- A7C-FEC-M Alternative: Impacts to one plant species, one toad species and one bird species.
- A7C-ALPV Alternative: Impacts to one plant species, one toad species and one bird species.
- AIO Alternative: Impacts to one toad species and one bird species.

4.26.13 UNAVOIDABLE ADVERSE IMPACTS RELATED TO WILD AND SCENIC RIVERS

The SOCTIIP study area does not contain wild, scenic or recreational rivers as addressed in the Wild and Scenic Rivers Act or listed in the National Inventory of Wild and Scenic Rivers. Therefore, the construction and operation of any of the SOCTIIP build Alternatives will not result in adverse impacts on wild and scenic rivers. Similarly, the No Action Alternatives will not result in adverse impacts on wild and scenic rivers.

4.26.14 UNAVOIDABLE ADVERSE IMPACTS RELATED TO COASTAL BARRIERS

The SOCTIIP study area does not contain coastal barriers as addressed in the Barrier Resource Act of 1982 or Coastal Barrier Improvement Act of 1990. Therefore, the construction and operation of any of the SOCTIIP build Alternatives will not result in adverse impacts on coastal barriers. Similarly, the No Action Alternatives will not result in adverse impacts on coastal barriers.

4.26.15 UNAVOIDABLE ADVERSE IMPACTS RELATED TO THE COASTAL ZONE

The FEC-W, FEC-M, CC, CC-ALPV, A7C-FEC-W, A7C-FEC-M and I-5 Alternatives encroach on the coastal zone and may require a Coastal Development Permit (CDP) (California) and a consistency finding with the CCMP (Federal).

If a build Alternative is selected, a CDP application will be submitted to the CCC. The CDP will address Coastal Zone concerns including biological, cultural and paleontological resources and

visual impacts based on impacts and mitigation identified in this EIS/SEIR for the selected alternative.

The No Action Alternatives will not result in unavoidable adverse impacts related to the coastal zone.

4.26.16 UNAVOIDABLE ADVERSE IMPACTS RELATED TO HISTORIC AND ARCHAEOLOGICAL RESOURCES

Because Phase II has yet to be conducted and will not be conducted until the selection of a preferred alternative, each archaeological and historic resource identified in Phase I is considered to be potentially substantially adversely impacted by the SOCTIIP build Alternative(s). The following SOCTIIP Alternatives would result in potentially substantial adverse impacts related to archaeological and historic resources that cannot be fully mitigated:

- FEC-W Alternative
- FEC-M Alternative
- CC Alternative
- CC Alternative
- A7C-FEC-M Alternative
- A7C-ALPV Alternative
- AIO Alternative (potential significant adverse impacts related to archaeological resources only. No potentially significant adverse impacts related to historic resources.)
- I-5 Alternative

Build out of the MPAH and the land use assumptions under the No Action Alternatives would be expected to result in adverse impacts related to archaeological and historic resources which may not be fully mitigated. However, the No Action Alternatives will not result in unavoidable adverse impacts to archeological and historic resources because they do not propose construction or implementation of any SOCTIIP infrastructure improvements in the study area.

4.26.17 UNAVOIDABLE ADVERSE IMPACTS RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTE SITES

None of the SOCTIIP build Alternatives would result in adverse impacts related to hazardous materials and hazardous wastes which cannot be mitigated. The No Action Alternatives will not result in unavoidable adverse impacts related to hazardous materials and hazardous waste.

4.26.18 UNAVOIDABLE ADVERSE IMPACTS RELATED TO VISUAL RESOURCES

The following SOCTIIP build Alternatives would result in adverse impacts related to visual resources which cannot be fully mitigated:

- FEC-M Alternative: Reduction in visual quality of 1.0 point or more from three view locations, reduction in visual quality of one view location and conflict with jurisdictional visual resources.

- FEC-W Alternative: Reduction in visual quality of 1.0 point or more from three view locations, reduction in visual quality of one view location and conflict with jurisdictional visual resources policies.

- CC Alternative: Reduction in visual quality of 1.0 point or more from two view locations and conflict with jurisdictional visual resources policies.

- CC-ALPV Alternative: Reduction in visual quality of 1.0 point or more from one view location and conflict with jurisdictional visual resources policies.

- A7C-ALPV Alternative: Reduction in visual quality of 1.0 point or more from three view locations, reduction in view quality of one regionally outstanding view and conflict with jurisdictional visual resources policies.

- A7C-FEC-M Alternative: Reduction in visual quality of 1.0 point or more from seven view locations, reduction in view quality of one regionally outstanding view, and conflict with jurisdictional visual resources policies.

- AIO Alternative: Reduction in visual quality of 1.0 point or more from two view locations and conflict with jurisdictional visual resources policies.

- I-5 Alternative: Reduction in visual quality of 1.0 point or more from view locations.

There will be no unavoidable adverse visual impacts associated with the No Action Alternatives because all of the visual changes are related to background road and land use assumptions, as the No Action Alternatives do not include the construction or operation of any SOCTIIP transportation improvements.

4.26.19 UNAVOIDABLE ADVERSE IMPACTS RELATED TO ENERGY

None of the SOCTIIP build Alternatives would result in adverse impacts related to energy which cannot be fully mitigated. The No Action Alternatives will not result in unavoidable adverse impacts related to energy.

4.26.20 UNAVOIDABLE ADVERSE IMPACTS RELATED TO EARTH RESOURCES

The following SOCTIIP build Alternatives would result in adverse impacts related to earth resources which cannot be fully mitigated. For each of these Alternatives, the adverse impact following mitigation would be the permanent lowering of the groundwater level at a mapped spring.

- FEC-W Alternative
- FEC-M Alternative
- CC Alternative
- CC-ALPV Alternative

- A7C-FEC-M Alternative
- A7C-ALPV Alternative
- AIO Alternative
- I-5 Alternative

The No Action Alternatives will not result in unavoidable adverse impacts related to earth resources.

4.26.21 UNAVOIDABLE ADVERSE IMPACTS RELATED TO MILITARY USES

The following SOCTIIP build Alternatives would result in adverse impacts related to military uses which cannot be fully mitigated:

- FEC-W Alternative: Permanent and temporary loss of land available for military training which would be adverse impacts on the Military Mission at MCB Camp Pendleton.

- FEC-M Alternative: Permanent and temporary loss of land available for military training which would be adverse impacts on the Military Mission at MCB Camp Pendleton.

- A7C-FEC-M Alternative: Permanent and temporary loss of land available for military training which would be adverse impacts on the Military Mission at MCB Camp Pendleton.

The No Action Alternatives will not result in the construction or implementation of SOCTIIP infrastructure improvements in the study area. Therefore, the No Action Alternatives will not result in unavoidable adverse impacts related to military uses.

4.26.22 UNAVOIDABLE ADVERSE IMPACTS RELATED TO MINERAL RESOURCES

None of the SOCTIIP build Alternatives would result in adverse impacts related to mineral resources which cannot be fully mitigated.

The No Action Alternatives will not result in the construction of any SOCTIIP related transportation improvements and would not reduce the availability of mineral resources. Therefore, the No Action Alternatives will not result in unavoidable adverse impacts related to mineral resources.

4.26.23 UNAVOIDABLE ADVERSE IMPACTS RELATED TO PALEONTOLOGICAL RESOURCES

None of the SOCTIIP build Alternatives would result in adverse impacts related to paleontological resources which cannot be fully mitigated.

Build out of the MPAH and the land use assumptions under the No Action Alternatives will result in adverse impacts on paleontological resources. However, the No Action Alternatives will not result in unavoidable adverse impacts on paleontological resources because they do not

propose construction or implementation of any SOCTIIP infrastructure improvements in the study area.

4.26.24 UNAVOIDABLE ADVERSE IMPACTS RELATED TO PUBLIC SERVICES AND UTILITIES

The following SOCTIIP build Alternatives would result in adverse impacts related to public services and utilities which cannot be fully mitigated:

- FEC-W Alternative: Permanent acquisition of a percolation pond on MCB Camp Pendleton for an EDB.
- FEC-M Alternative: Permanent acquisition of a percolation pond on MCB Camp Pendleton for an EDB.
- CC Alternative: Generation and disposal of excess soil and rock material (Ultimate only); reduction in capacity and lifespan of Prima Deshecha Landfill (Ultimate only); temporary loss of use of part of the sports facilities at San Clemente High and play area at Ole Hanson Elementary Schools; permanent acquisition of property at San Clemente High and Ole Hanson Elementary Schools.
- CC-ALPV Alternative: Reduction in capacity and lifespan of Prima Deshecha Landfill.
- A7C-ALPV Alternative: Reduction in capacity and lifespan of Prima Deshecha Landfill.
- A7C-FEC Alternative: Permanent acquisition of a percolation pond on MCB Camp Pendleton for an EDB.
- AIO Alternative: Generation and disposal of excess soil and rock material; reduction in capacity and lifespan of Prima Deshecha Landfill; temporary loss of use of school land and permanent acquisition of playing fields at Las Flores Elementary School.
- I-5 Alternative: Generation and disposal of excess soil and rock material; temporary loss of use of school land and permanent acquisition of playing fields/school property at Saint George's Episcopal Academy, Mission Viejo High, Rancho Capistrano, San Clemente High, and San Juan Elementary Schools; temporary use and permanent acquisition of property at Laguna Hills City Hall, San Clemente Post Office and Buccheim Fields.

The No Action Alternatives will not result in the construction or implementation of SOCTIIP infrastructure improvements in the study area. Therefore, the No Action Alternatives will not result in unavoidable adverse impacts related to public services and utilities. However, the No Action alternatives would not have the positive effect related to emergency evacuation of increasing the speed at which evacuations could be completed because these No Action Alternatives would not provide an alternate evacuation route should I-5 become impassable for some reason.

4.26.25 UNAVOIDABLE ADVERSE IMPACTS RELATED TO RECREATION RESOURCES

The following SOCTIIP build Alternatives would result in adverse impacts related to recreation resources which cannot be fully mitigated.

- FEC-W Alternative

  - Short term noise impacts on three existing recreation resources and one proposed recreation resource (if proposed recreation resource is operational during construction).

  - Short term and operational noise impacts on three existing recreation resources.

  - Short term air quality impacts (if proposed recreation resources are operational during construction) and long term visual impacts on one existing and three proposed recreation resources.

  - Short term and operational noise impacts, short term air quality impacts and long term visual impacts to two existing recreation resources.

- FEC-M Alternative

  - Short term noise impacts on three existing recreation resources and one proposed recreation resource (if proposed recreation resource is operational during construction).

  - Short term and operational noise impacts on three existing recreation resources.

  - Short term air quality impacts (if proposed recreation resources are operational during construction) and long term visual impacts on one existing and two proposed recreation resources.

  - Short term and operational noise impacts, short term air quality impacts and long term visual impacts to two existing recreation resources.

  - Long term visual impacts to one recreation resource.

- CC Alternative

  - short term air quality impacts (if proposed recreation resources are operational during construction) and long term visual quality impacts on four proposed recreation resources.

  - short term noise impacts on eight existing recreation resources.

  - short term air quality impacts (if proposed recreation resource is operational during construction) on one proposed and one existing recreation resource.

- long term visual quality impact on two proposed recreation resources.

- short term noise, short term air quality and temporary use and permanent acquisition of property of two existing recreation resources.

- CC-ALPV Alternative

- Short term noise impacts on one existing recreation resources.

- Short term and operational noise impacts on one existing recreation resource.

- Short term air quality impacts (if proposed recreation resources are operational during construction) and long term visual impacts on two proposed recreation resources.

- Short term air quality impacts on one existing recreation resource.

- Long term visual impacts on two proposed recreation resources.

- A7C-ALPV Alternative

- Short term noise impacts on one existing recreation resources.

- Short term and operational noise impacts on one existing recreation resource.

- Short term air quality impacts (if proposed recreation resources are operational during construction) and long term visual impacts on one proposed recreation resource.

- Short term air quality impacts on one existing and one proposed recreation resource.

- Long term visual impacts on two proposed recreation resources.

- Short term and operation noise impacts, short term air quality and long term visual impacts on one existing recreation resource.

- A7C-FEC-M Alternative

- Short term noise impacts on three existing recreation resources and one proposed recreation resource (if proposed recreation resource is operational during construction).

- Short term and operational noise impacts on three existing recreation resources.

- Short term air quality impacts (if proposed recreation resources are operational during construction) and long term visual impacts on one existing and three proposed recreation resources.

- Short term and operational noise impacts, short term air quality impacts and long term visual impacts to two existing recreation resources.

- AIO Alternative

- Short term noise and short term air quality impacts on two existing recreation resources.

- Short term air quality impacts (if proposed recreation resources are operational during construction) on six proposed recreation resources and two existing.

- Short term noise impacts on one existing recreation resource.

- I-5 Alternative

- Short term noise and short term air quality impacts on 13 existing recreation resources.

- Short term air quality impacts (if proposed recreation resources are operational during construction) on five proposed and four existing recreation resources.

- Short term noise impacts on 30 existing recreation resources.

- Operational noise, short term noise and short term air quality impacts on one existing recreation resource.

No Action Alternative - OCP-2000

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any additional SOCTIIP related transportation improvements. Therefore, the No Action Alternative-OCP-2000 will not result in unavoidable adverse construction impacts to any recreation resources.

No Action Alternative - RMV

This No Action Alternative assumes implementation of adopted MPAH and RTP improvements in this part of Orange County, but does not assume any SOCTIIP related transportation additional improvements. Therefore, the No Action Alternative-RMV will not result in unavoidable adverse construction impacts to any recreation resources.

4.27 THE RELATIONSHIP BETWEEN LOCAL AND SHORT TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

4.27.1 METHODOLOGY

The relationship between local short term uses of our environment and the enhancement of its long term productivity under the proposed Alternatives is a required topic of discussion in an EIR/EIS under both CEQA and NEPA. The SOCTIIP would result in benefits and gains as well as costs and impacts. This Section evaluates the short term use of the environment in relation to adverse effects on the maintenance or enhancement of long term productivity.

The Caltrans Environmental Handbook – Volume I (1995) requires a summary of any tradeoffs caused by a proposed project that would lead to short term (economic) gains at the expense of long term (natural) productivity. The build Alternatives project will result in benefits as demonstrated in more detail later in this Section. Concurrently, there will usually be costs, side effects and loss of natural resources that have long term productive value associated with project development. For this discussion, short term and long term relate to the time frame for environmentally significant consequences of the proposed action.

Short term and long term uses include such benefits as improved transportation, better safety, better public services and more efficient economic activities. These benefits have been recognized for several years, as reflected in the build Alternatives inclusion in the MPAH and regional plans. Short term uses also include such costs as construction materials consumed, impacted natural resources, disrupted community or economic activities, and removal of existing homes or businesses. Long term productivity refers to valuable uses for the existing environment (e.g., circulation system, agricultural land, socioeconomics, environmental resources or existing urban living and working places).

The beneficial effects and direct and indirect impacts for each Alternative was obtained from the SOCTIIP Traffic and Circulation Technical Report (Austin Foust, 2003). Build out of the circulation system with 14,000 du proposed for RMV was assumed for each Alternative.

Sources used to obtain data for analysis include: SOCTIIP Traffic and Circulation Technical Report (Austin Foust, 2003), SOCTIIP Natural Environment Study (P&D Consultants), SOCTIIP Project Alternatives Technical Report (P&D Consultants, 2003), SOCTIIP Socioeconomics and Growth Inducing Impacts Technical Report (P&D Consultants, 2003), SOCTIIP Relocation Technical Report (P&D Consultants, 2003), SOCTIIP Right of Way Cost Estimates Technical Report (P&D Consultants, 2003), SOCTIIP Land Use Technical Report (P&D Consultants, 2003).

4.27.2 ANALYSIS

This Section focuses on the short term benefits, short term costs/impacts and long term productivity related to circulation system impacts for each SOCTIIP Alternative. Table 4.27-1

summarizes the benefits and impacts resulting from each Alternative. Tables cited in this Section are provided following the last page of text in this Section.

4.27.2.1 Far East Corridor-West Alternative

Short Term Benefits

Short term benefits that would result from the FEC-W Alternative relate generally to improved traffic flow and reduced congestion due to the availability of an alternative travel route in South Orange County. Time spent commuting would decrease with travel time savings for the proposed RMV plan of 20,000 hr/day and 34,000 hr/day for OCP-2000, compared to the No Action Alternatives in 2025. The addition of a new travel route will also increase safety.

The FEC-W Alternative would result in substantially fewer arterial intersection and I-5 mainline deficiencies compared to the No Action Alternatives. The FEC-W Alternative is forecast to have a beneficial effect at a substantial number of locations including I-5 mainline segments, arterial intersections and freeway/tollway ramps.

There would be an increase in short term construction jobs (17,000 jobs for the Initial and 21,000 jobs for the Ultimate) associated with this Alternative. Over the long term, there would be an undetermined amount of jobs, mostly associated with road maintenance, toll plaza staff and traffic enforcement needs, generated by this Alternative.

Short Term Costs/Impacts

The construction cost of the FEC-W Alternative is estimated at approximately $637 million for the Initial and $798 million for Ultimate. The costs for construction were developed by the TCA (2002). Land acquisition costs are estimated at $68 million for the FEC-W Initial and $72 million for the FEC-W Ultimate. The land acquisition costs are from the ROW Cost Estimates Study (P&D Consultants, 2003). These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts of the FEC-W Alternative to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction and operational noise, loss of visual quality and increased energy use with mitigation measures designed to reduce those impacts. Subsurface conditions on site indicate a potential for liquefaction and landslides along the FEC-W Alternative at the I-5 connector. Directly impacted riparian ecosystem include 16 ha (39 ac) for the Initial and 16 ha (40 ac) for the Ultimate. The Alternative would result in 12 km (8 mi) of directly impacted waters of the US for the Initial and 13 km (8 mi) for the Ultimate. Impacted plant communities resulting from construction of the FEC-W Alternative include 444 ha (1,097 ac) for the Initial and 462 ha (1,141 ac) for the Ultimate. Mitigation will reduce some of these impacts.

No direct adverse traffic impacts are forecast to occur under the FEC-W Alternative. However, indirect adverse impacts are forecast to occur at four I-5 ramps. The indirect impacts occur because the FEC-W Alternative divert traffic from I-5 ramps, thereby reducing the level of

congestion on I-5. As a result, vehicle traffic that may otherwise avoid I-5 now chooses to use I-5, resulting in additional traffic at some of the ramps and ramp intersections serving I-5. It is this additional traffic that causes indirect adverse impacts to occur under the FEC-W Alternative.

The FEC-W Alternative would displace 32 ha (78 ac) of rated agricultural land (Natural Resource Conservation Service (NRCS)) and 109 ha (269 ac) of agricultural reserves (Williamson Act) for the Initial and 32 ha (80 ac) of rated agricultural land and 111 ha (275 ac) of agricultural reserves for the Ultimate, as stated in Table 4.3-3 Summary of Impacts Mitigation Measures and Level of Significance after Mitigation Related to Farmland Impacts in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Farmland).

Long Term Productivity

The FEC-W Alternative would convert agricultural land to a transportation corridor use. However, mitigation measures provided in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Agricultural Resources) would reduce some of this impact on agricultural land.

The FEC-W Alternative would add approximately 26 km (16 mi) of road and an additional 4.6 km (2.9 mi) of improvements on I-5. This would change the circulation system in the study area, with the added road making some traffic movements more efficient and safer with improved access. This Alternative would also provide a travel time savings of 20,000 hr/day for the proposed RMV plan and 34,000 hr/day for OCP-2000 (RMV at 21,000 dus).

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the FEC-W Alternative. This Alternative has a large number of benefits and also a large number of impacts. The cost of building this Alternative is high but the time savings on the road is also high.

4.27.2.2 Far East Corridor-Modified Alternative

Short Term Benefits

Short term benefits that would result from the FEC-M Alternative relate generally to improved traffic flow and reduced congestion due to the availability of an alternative travel route in South Orange County. Time spent commuting would decrease with travel time savings for the proposed RMV plan of 20,000 hr/day and 34,000 hr/day for OCP-2000, compared to the No Action Alternatives in 2025. The addition of a new travel route will also increase safety.

The FEC-M Alternative would result in substantially fewer arterial intersection and I-5 mainline deficiencies compared to the No Action Alternatives. The FEC-M Alternative is forecast to have a beneficial effect at a substantial number of locations including I-5 mainline segments, arterial intersections and freeway/tollway ramps.

There would be an increase in short term construction jobs (19,000 jobs for the Initial and 23,000 jobs for Ultimate) associated with this Alternative. Over the long term, there would be an undetermined amount of jobs, mostly associated with road maintenance, toll plaza staff and traffic enforcement needs, generated by this Alternative.

Short Term Costs/Impacts

The construction cost of the FEC-M Alternative is estimated at approximately $696 million for the Initial and $842 million for the Ultimate. The costs for construction were developed by the TCA (2002). Land acquisition costs are estimated at $66 million for the Initial and $69 million for the Ultimate of the FEC-M Alternative. The land acquisition costs are from the ROW Cost EstimatesStudy (P&D Consultants, 2003). These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts of the FEC-M Alternative to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use with mitigation measures designed to reduce those impacts. Subsurface conditions on site indicate a potential for liquefaction and landslides along the FEC-M Alternative at the I-5 connector. Directly impacted riparian ecosystem include 19.8 ha (49 ac) for the Initial and 21.6 ha (53.4 ac) for the Ultimate. The Alternative would result in 15.0 km (9.3 mi) of directly impacted waters of the US for the Initial and 15.9 km (11.3 mi) for the Ultimate. Impacted plant communities resulting from construction of the FEC-M Alternative include 459 ha (1,133 ac) for the Initial and 486 ha (1,200 ac) for the Ultimate. Mitigation will reduce some of these impacts.

No direct adverse traffic impacts are forecast to occur under the FEC-M Alternative. However, indirect adverse impacts are forecast to occur at four I-5 ramps. The indirect impacts occur because the FEC-M Alternative diverts traffic from I-5 ramps, thereby reducing the level of congestion on I-5. As a result, vehicle traffic that may otherwise avoid I-5 now chooses to use I-5, resulting in additional traffic at some of the ramps and ramp intersections serving I-5. It is this additional traffic that causes indirect adverse impacts to occur under the FEC-M Alternative.

The FEC-M Alternative would displace 21 ha (53 ac) of rated agricultural land (NRCS) and 123 ha (307 ac) of agricultural reserves (Williamson Act) for the Initial and 24 ha (58 ac) of rated agricultural land and 133 ha (328 ac) of agricultural reserves for the Ultimate, as stated in Table 4.3-3 Summary of Impacts Mitigation Measures and Level of Significance after Mitigation Related to Farmland Impacts in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Farmland).

Long Term Productivity

The FEC-M Alternative would convert agricultural land to a transportation corridor use. However, mitigation measures provided in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Agricultural Resources) would reduce some of this impact on agricultural land.

The FEC-M Alternative would add approximately 26 km (16 mi) of road and an additional 1.3 km (0.8 mi) of improvements on I-5. This would change the circulation system in the study area, with the added road making some traffic movements more efficient and safer with improved access. This Alternative would also provide a travel time savings of 20,000 hr/day for the proposed RMV plan and 34,000 hr/day for OCP-2000.

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the FEC-M Alternative. This Alternative has a large number of benefits and also a large number of impacts. The cost of building this Alternative is high but the time savings on the road is also high.

4.27.2.3 Central Corridor – Complete Alternative

Short Term Benefits

Short term benefits that would result from the CC Alternative relate generally to improved traffic flows and reduced congestion due to the availability of an alternative travel route in South Orange County. Time spent commuting would decrease with travel time savings for the proposed RMV plan of 18,000 hr/day and of 26,000 hr/day for OCP-2000 compared to the No Action Alternatives in 2025. The addition of a new travel route will also increase safety.

The CC Alternative is forecast to have a beneficial effect at a substantial number of locations, including I-5 mainline segments, arterial intersections and freeway/tollway ramps. Also, the CC Alternative results in substantially fewer arterial intersections and I-5 mainline segments deficiencies compared to the No Action Alternatives.

There would be an increase in short term construction jobs (23,000 jobs for the Initial and 31,000 jobs for the Ultimate) associated with this Alternative. Over the long term, there would be an undetermined amount of jobs, mostly associated with road maintenance, toll plaza staff and traffic enforcement needs generated by the CC Alternative.

Short Term Costs/Impacts

The construction cost of this Alternative is estimated at approximately $703 million for the Initial and $944 million for the Ultimate. Land acquisition costs are estimated at $419 million for the Initial and $435 million for the Ultimate. These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use. Directly impacted riparian ecosystems comprise 21.5 ha (53.7 ac) for the Initial and 24.1 ha (60.2 ac) for the Ultimate. The Alternative would result in 16.5 km (10.3 mi) of directly impacted waters of the US for the Initial and 18.1 km (11.3 mi) for the Ultimate. Impacted plant communities resulting from construction of the CC Alternative include 491 ha (1,213 ac) for the Initial and 528 ha (1,304 ac) for the Ultimate. Mitigation will reduce some impacts.

The number of deficient freeway/tollway ramps is similar for the CC and No Action Alternatives because of direct adverse traffic impacts that occur at the I-5/Avenida Pico interchange and indirect adverse impacts that occur at various I-5 ramps under the CC Alternative. The indirect impacts occur because the CC Alternative diverts traffic from I-5, thereby reducing congestion on I-5. As a result, vehicle traffic that may otherwise avoid I-5 now chooses to use I-5, resulting in additional traffic at some of the ramps and ramp intersections serving I-5. It is this additional traffic that causes indirect adverse impacts to occur under the CC Alternative.

The CC Alternative would displace 593 housing units and 1,380 persons for the Initial and 602 housing units and 1,405 persons under the Ultimate. This Alternative would also each displace 106 uses, 89 of which are commercial uses in the City of San Clemente and 1,100 employees.

The CC Alternative would displace 18 ha (43 ac) of rated agricultural land (NRCS) and 84 ha (208 ac) of agricultural reserves (Williamson Act) for the Initial and 22 ha (53 ac) of rated agricultural land and 110 ha (272 ac) of agricultural reserves for the Ultimate, as stated in Table 4.3-3 Summary of Impacts Mitigation Measures and Level of Significance after Mitigation Related to Farmland Impacts in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Farmland).

Long Term Productivity

The CC Alternative would convert agricultural land to a transportation corridor use. However, mitigation measures provided in Section 4.3.4 would reduce some of these impacts on agricultural land.

This Alternative would convert residences and businesses to a transportation corridor use. There are sufficient sites in the study area for the relocation of these displaced uses.

The CC Alternative would add approximately 19 km (12 mi) of roadway, with approximately 4.6 km (2.9 mi) of improvements on I-5. This would change the circulation system in the study area, with the added road making some traffic movements more efficient and safer with improved access. This Alternative would also provide a travel time savings of 18,000 hr/day for the RMV plan and 26,000 hr/day for OCP-2000.

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the CC Alternative. This Alternative has a large number of benefits and a larger number of impacts. In addition to the benefits associated with intersection efficiency, public safety and travel time savings, this Alternative would result in impacts due to cost and the large displacement of people and agricultural land.

4.27.2.4 Central Corridor-Avenida La Pata Variation Alternative

Short Term Benefits

Short term benefits that would result from the CC-ALPV Alternative relate generally to improved traffic due to the availability of an alternative travel route in South Orange County. Time spent commuting would decrease with travel time savings of 8,000 hr/day for the Initial and Ultimate (assuming RMV plan and MPAH/RTP build out) compared to the No Action Alternatives.

The CC-ALPV Alternative is forecast to have a beneficial effect at a number of locations, including I-5 mainline segments, arterial intersections and I-5 ramps. The CC-ALPV Alternative also moderately reduces the number of deficient arterial intersections and I-5 mainline segments compared to the No Action Alternatives.

There would be an increase in short term construction jobs (15,000 jobs for the Initial and 18,000 jobs for the Ultimate) associated with this Alternative. Over the long term, there would be an undetermined amount of jobs, mostly associated with road maintenance, toll plaza staff and traffic enforcement needs generated by the CC-ALPV Alternative.

Short Term Costs/Impacts

The construction cost of this Alternative is estimated at approximately $457 million for the Initial and $560 million for the Ultimate. Land acquisition costs are estimated at $55 million for the Initial and $68 million for the Ultimate. These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use. Directly impacted riparian ecosystem include 20.2 ha (49.9 ac) for the Initial and 23.2 ha (57.4 ac) for the Ultimate. Impacted plant communities resulting from construction of the CC-ALPV Alternative include 324 ha (800 ac) for the Initial and 370 ha (913 ac) for the Ultimate. The Alternative would result in 13.5 km (8.4 mi) of directly impacted waters of the US for the Initial and 15.0 km (9.3 mi) for the Ultimate. Impacted plant communities resulting from construction of the CC-ALPV Alternative include 324 ha (800 ac) for the Initial and 370 ha (913 ac) for the Ultimate. Mitigation will reduce some of these impacts.

The number of deficient freeway/tollway ramps is similar for the CC-ALPV Alternative and the No Action Alternatives because of direct adverse traffic impacts that occur at the I-5/Avenida Pico interchange and indirect adverse impacts that occur at various I-5 ramps under the CC-ALPV Alternative. The indirect impacts occur because the CC-ALPV Alternative divert traffic from I-5, thereby reducing congestion on I-5. As a result, vehicle traffic that may otherwise avoid I-5 now chooses to use I-5, resulting in additional traffic at some of the ramps and ramp intersections serving I-5. It is this additional traffic that causes indirect adverse impacts to occur under the CC-ALPV Alternative.

Under the CC-ALPV Alternative, direct adverse traffic impacts are projected to occur at two intersection locations in San Clemente and at two I-5/Avenida Pico interchange ramps. Indirect adverse impacts are forecast to occur at three I-5 ramps under the CC-ALPV Alternative.

The CC-ALPV Alternative would displace two housing units and seven persons for the Initial and 14 housing units and 44 persons under the Ultimate.

The CC-ALPV Alternative would displace 18 ha (43 ac) of rated agricultural land (NRCS) and 84 ha (208 ac) of agricultural reserves for the Initial and 22 ha (53 ac) of rated agricultural land and 110 ha (272 ac) of agricultural reserves for the Ultimate.

Long Term Productivity

The CC-ALPV Alternative would acquire agricultural land and take it out of production. However, mitigation measures provided in Section 4.3.4 would substantially reduce these impacts on agricultural land.

This Alternative would acquire residences, as described previously. There are sufficient sites in the study area for the relocation of these displaced people.

The CC-ALPV Alternative would add approximately 14 km (9 mi) of road. This would change the circulation system in the study area, with the added road making some traffic movements more efficient. This Alternative would also provide a travel time savings of 8,000 hr/day (assuming the RMV plan and MPAH/RTP build out).

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the CC-ALPV Alternative. This Alternative has a large number of benefits and also a large number of impacts. The cost of building this Alternative is moderate compared to the other Alternatives. Also, the time savings on the roadway are moderate.

4.27.2.5 Alignment 7 Corridor Far East Crossover – Modified Alternative

Short Term Benefits

Short term benefits that would result from the A7C-FEC-M Alternative relate generally to improved traffic due to the availability of an alternative travel route in South Orange County. Time spent commuting would decrease with travel time savings for the proposed RMV plan of 21,000 hr/day and of 25,000 hr/day for OCP – 2000 compared to the No Action Alternatives.

The A7C-FEC-M Alternative are forecast to have a beneficial effect at a number of locations, including I-5 mainline segments, arterial intersections and I-5 ramps. The A7C-FEC-M Alternative also moderately reduces the number of deficient arterial intersections and I-5 mainline segments compared to the No Action Alternatives.

There would be an increase in short term construction jobs (17,000 jobs for the Initial and 21,000 jobs for the Ultimate) associated with this Alternative. Over the long term there would be an undetermined amount of jobs, mostly associated with road maintenance, toll plaza staff and traffic enforcement needs generated by the A7C-FEC-M Alternative.

Short Term Costs/Impacts

The construction cost of this Alternative is estimated at approximately $645 million for the Initial and $800 million for the Ultimate. Land acquisition costs are estimated at $70 million for the Initial and $73 million for the Ultimate. These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use. Directly impacted riparian ecosystem include 17.4 ha (42.9 ac) for the Initial and 18.5 ha (45.6 ac) for the Ultimate. The Alternative would result in 14.3 km (8.9 mi) of directly impacted waters of the US for the Initial and 15.0 km (9.3 mi) for the Ultimate. Impacted plant communities resulting from construction of the A7C-FEC-M Alternative include 447 ha (1,103 ac) for the Initial and 464 ha (1,145 ac) for the Ultimate. Mitigation will reduce some of these impacts.

No direct adverse traffic impacts are forecast to occur under the A7C-FEC-M Alternative. However, indirect adverse impacts are forecast to occur at four I-5 ramps. The indirect impacts occur because the A7C-FEC-M Alternative diverts traffic from I-5 ramps, thereby reducing the level of congestion on I-5. As a result, vehicle traffic that may otherwise avoid I-5 now chooses to use I-5, resulting in additional traffic at some of the ramps and ramp intersections serving I-5. It is this additional traffic that causes indirect adverse impacts to occur under the A7C-FEC-M Alternative.

The A7C-FEC-M Alternative would displace 80 housing units and 256 persons under the Initial and 92 housing units and 293 persons under the Ultimate.

The A7C-FEC-M Alternative would displace 2 ha (6 ac) of rated agricultural land (NRCS) and 89 ha (220 ac) of agricultural reserves for the Initial and 2 ha (6 ac) of rated agricultural land and 92 ha (227 ac) of agricultural reserves for the Ultimate.

Long Term Productivity

The A7C-FEC-M Alternative would acquire residences. There are sufficient sites in the study area for the relocation of these displaced people.

The A7C-FEC-M Alternative would add approximately 26 km (16 mi) of road, with an additional approximately 1.3 km (0.3 mi) of improvements on the I-5. This would change the circulation system in the study area, with the added road making some traffic movements more efficient. This Alternative would also provide a travel time savings of 21,000 hr/day for the RMV Plan and 25,000 hr/day for OCP-2000.

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the A7C-FEC-M Alternative. This Alternative has a relatively large number of benefits and a large number of impacts. In addition to the benefits associated with intersection efficiency and travel time savings, these Alternative would result in impacts due to cost and displacement of persons.

4.27.2.6 Alignment 7 Corridor-Avenida La Pata Variation Alternative

Short Term Benefits

Short term benefits that would result from the A7C-ALPV Alternative relate generally to improved traffic due to the availability of an alternative travel route in South Orange County. Time spent commuting would decrease with travel time savings are 8,000 hr/day (assuming the RMV plan and OCP-2000 build out) compared to the No Action Alternatives.

The A7C-ALPV Alternative provides essentially the same connection to the local circulation system as the CC-ALPV Alternative. Future traffic conditions and the beneficial effects to the circulation system for this Alternative are essentially the same as the A7C-ALPV Alternative results discussed in Section 4.27.2.4.

There would be an increase in short term construction jobs (28,000 jobs for the Initial and 30,000 jobs for the Ultimate) associated with this Alternative. Over the long term there would be an undetermined amount of jobs, mostly associated with road maintenance, toll plaza staff and traffic enforcement needs generated by the A7C-ALPV Alternative.

Short Term Costs/Impacts

The construction cost of this Alternative is estimated at approximately $876 million for the Initial and $924 million for the Ultimate. Land acquisition costs are estimated at $86 million for the A7C-ALPV Initial and $96 million for the A7C-ALPV Ultimate. These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use. Directly impacted riparian ecosystem include 9.4 ha (23.1 ac) for the Initial and 13.0 ha (32.0 ac) for the Ultimate. The Alternative would result in 6.8 km (4.2 mi) of directly impacted waters of the US for the Initial and 8.2 km (5.1 mi) for the Ultimate. Impacted plant communities resulting from construction of the A7C-ALPV Alternative include 371 ha (915 ac) for the Initial and 430 ha (1,061 ac) for the Ultimate. Mitigation will reduce some of these impacts.

The A7C-ALPV Alternative provides essentially the same connection to the local circulation system as the CC-ALPV Alternative. Future traffic conditions and the adverse impacts to the

circulation system for this Alternative are essentially the same as the CC-ALPV Alternative results discussed in Section 4.27.2.4.

The A7C-ALPV Alternative would displace 80 housing units and 256 persons under the Initial and 92 housing units and 293 persons under the Ultimate.

The A7C-ALPV Alternative would displace 3 ha (8 ac) of rated agricultural land (NRCS) and 171 ha (423 ac) of agricultural reserves for the Initial and 4 ha (9 ac) of rated agricultural land and 183 ha (451 ac) of agricultural reserves for the Ultimate.

Long Term Productivity

The A7C-ALPV Alternative would acquire residences. There are sufficient sites in the study area for the relocation of these displaced people.

The A7C-ALPV Alternative would add approximately 14 km (8 mi) of road. This would change the circulation system in the study area, with the added road making some traffic movements more efficient. This Alternative would also provide a travel time savings of 8,000 hr/day (assuming the RMV plan and MPAH/RTP build out).

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the A7C-ALPV Alternative. This Alternative has a relatively large number of benefits and a large number of impacts. In addition to the benefits associated with intersection efficiency and travel time savings, this Alternative would result in impacts due to cost and displacement of persons.

4.27.2.7 Arterial Improvements Only Alternative

Short Term Benefits

Short term benefits that would result from the AIO Alternative relate generally to improved traffic flow and reduced congestion due to the proposed improvements. Time spent commuting would decrease with travel time savings for the proposed RMV plan of 5,000 hr/day and 8,000 hr/day for OCP-2000, compared to the No Action Alternatives. The addition of a new travel route will also increase safety.

The AIO Alternative is forecast to have a beneficial effect at four arterial intersections. The AIO Alternative results in substantially fewer arterial intersection and I-5 main line deficiencies compared to the No Project Alternative.

There would be an increase in short term construction jobs (11,000 jobs) associated with this Alternative. The amount of long term jobs is unknown.

Short Term Costs/Impacts

The construction cost of this Alternative is estimated at approximately $351 million. Land acquisition costs are estimated at $171 million for the AIO Alternative. These costs are in addition to the cost of constructing this Alternative.

Potential short term impacts to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use. The AIO Alternative would result in 3.7 ha (9.2 ac) of directly impacted riparian ecosystems. The Alternative would result in 5.9 km (3.7 mi) of directly impacted waters of the US. Impacted plant communities resulting from construction of the AIO Alternative include 230 ha (568 ac). However, mitigation measures are designed to reduce these impacts.

The AIO Alternative produces fewer deficient arterial intersections, I-5 mainline segments and freeway/tollway ramps compared to the No Action Alternatives, although the Alternative results in the most deficiencies of all alternatives analyzed. Direct adverse traffic impacts are projected to occur under the AIO Alternative at a number of freeway/tollway ramps and freeway/tollway ramp intersections that lead to and from the Antonio Parkway/Avenida La Pata corridor. An indirect adverse impact is also forecast to occur at one I-5 ramp under the AIO Alternative.

The AIO Alternative would displace 263 housing units and 827 persons. The Alternative would also displace 17 uses, 4 of which are commercial uses in the City of Rancho Santa Margarita and 200 employees. The AIO Alternative would displace 6 ha (14 ac) of rated agricultural land (NRCS) and 15 ha (37 ac) of agricultural reserves (Williamson Act), as stated in Table 4.3-3 Summary of Impacts Mitigation Measures and Level of Significance after Mitigation Related to Farmland Impacts in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Farmland).

Long Term Productivity

The AIO Alternative would convert agricultural land to a transportation corridor use. However, mitigation measures provided in Section 4.3.4 would substantially reduce impacts on agricultural land.

The AIO Alternative would also convert residences and businesses to a transportation corridor use. This Alternative would require the acquisition of 263 residences and displace 200 employees. There are sufficient sites in the study area for the relocation of these displaced uses.

The AIO Alternative assumes improvements beyond the MPAH and the RTP on Antonio/LA Pata. This would improve some of the arterial intersections in the circulation system in the study area, thereby making some traffic movements more efficient and safer with improved access. This Alternative would also provide a travel time savings of 5,000 hr/day for the RMV plan and 8,000 hr/day for OCP-2000.

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the AIO Alternative. The Alternative has a moderate number of benefits and impacts with moderate travel time savings. Even though the costs to construct these improvements are low, the impact of displacing persons, businesses, and agricultural land is high.

4.27.2.8 I-5 Alternative

Short Term Benefits

Short term benefits that would result from the I-5 Alternative relate generally to improved traffic flow and reduced congestion due to the improvements proposed on I-5. Time spent commuting would decrease with travel time savings for the proposed RMV plan at 20,000 hr/day and at 22,000 hr/day for OCP-2000, compared to the No Action Alternatives.

The I-5 Alternative is forecast to have a beneficial effect at nine arterial intersections and five tollway ramps. The I-5 Alternative results in substantially fewer I-5 mainline deficiencies compared to the No Action Alternatives, with only the segment of I-5 between El Toro Road and Alicia Parkway forecast to operate deficiently under the I-5 Alternative, and fewer arterial intersection and freeway/tollway ramp deficiencies than the No Action Alternatives.

There would be an increase in short term construction jobs (43,000 jobs) associated with this Alternative. The amount of long term jobs is unknown.

Short Term Costs/Impacts

The construction cost of this Alternative is estimated at approximately $1.331 billion. Land acquisition costs are estimated at $1.07 million for the I-5 Alternative. The land acquisition costs are in addition to the cost of constructing the Alternative.

Potential short term impacts to the environment include soil disturbance, sediment runoff, traffic disruptions, air quality impacts, construction noise, loss of visual quality and increased energy use. The I-5 Alternative would result in 5.5 ha (13.7 ac) of directly impacted riparian ecosystems. The Alternative would result in 4.8 km (3.0 mi) of directly impacted waters of the US stream channels. Impacted plant communities resulting from construction of the I-5 Alternative include 504 ha (1,245 ac). However, mitigation measures are designed to reduce these impacts.

Direct adverse traffic impacts are forecast to occur under the I-5 Alternative at a number of intersections and freeway ramps along routes that lead to and from the I-5 corridor. No indirect adverse impacts are forecast to occur under the I-5 Alternative.

The I-5 Alternative would displace 838 housing units and 1,970 persons. The Alternative would also displace 382 uses, 336 of which are commercial uses and 4,150 employees.

Long Term Productivity

The I-5 Alternative would convert residences and businesses to a transportation corridor use. There are sufficient sites in the study area for relocation of these displaced uses.

The I-5 Alternative assumes full build out of the MPAH and the RTP and substantial additional improvements to I-5. This would improve some of the arterial and freeway intersections in the circulation system in the study area, thereby making some traffic movements more efficient and safer with improved access. This Alternative would also provide a travel time savings of 20,000 hr/day for the RMV plan and 22,000 hr/day for OCP-2000.

Conclusion

Table 4.27-1 shows a comparison of benefits and impacts of the I-5 Alternative. The Alternative has moderate travel time savings and would benefit only two arterial intersections. Benefits are moderate even though the costs to construct the improvements on the I-5 and the impact of displacing persons, businesses, and agricultural land are high.

4.27.2.9 No Action Alternative – OCP-2000

Short Term Benefits

Because this No Action Alternative would not include any SOCTIIP transportation improvements, there would not be short term benefits related to this Alternative.

Short Term Costs/Impacts

Because this No Action Alternative would not include any construction of SOCTIIP transportation improvements, there would not be short term costs or impacts related to this Alternative. A number of facilities are forecast to operate deficiently in this No Action Alternative, and a greater number of deficiencies are forecast based on the committed circulation system than the MPAH/RTP buildout circulation system. This is because the MPAH/RTP buildout circulation system provides more facilities and greater system capacity than the committed system.

Long Term Productivity

Because there would be no SOCTIIP construction under this No Action Alternative, there would be no direct impacts to long term productivity, however there may be adverse indirect effects associated with increased congestion and delay created by future traffic. As stated previously, a number of deficiencies are forecast based on the committed circulation system. These deficiencies are not associated with a SOCTIIP alteration of the circulation network and, therefore, are not a direct impact. In addition, the purpose and need will not be met and the benefits of the build Alternatives would not be provided under this No Action Alternative.

Conclusion

Because there would be no SOCTIIP related construction under the No Action Alternative, there would be no direct impacts and no benefits to short term or long term productivity.

4.27.2.10 No Action Alternative – RMV Plan

Short Term Benefits

Because this No Action Alternative would not include SOCTIIP transportation improvements, there would not be short term benefits related to this Alternative.

Short Term Costs/Impacts

Because this No Action Alternative would not include any construction of SOCTIIP transportation improvements, there would be no short term costs or impacts related to this Alternative. A number of facilities are forecast to operate deficiently in this No Action Alternative and a greater number of deficiencies are forecasts based on the committed circulation system than the MPAH/RTP buildout circulation system. This is because the MPAH/RTP buildout circulation system provides more facilities and greater system capacity than the committed system. A somewhat greater number of deficiencies are forecast under scenarios that assume the 21,000 du OCP-2000 for the RMV area compared to scenarios based on the 14,000 du proposed RMV development plan.

Long Term Productivity

Because there would be no SOCTIIP construction under this No Action Alternative, there would be no direct impacts to long term productivity, however there may be adverse indirect effects associated with increased congestion and delay created by future traffic. As stated previously, a number of deficiencies are forecast based on the committed circulation system. These deficiencies are not associated with a SOCTIIP alteration of the circulation network and, therefore, are not a direct impact. In addition, the purpose and need will not be met and the benefits of the build Alternatives would not be provided under this No Action Alternative.

Conclusion

Because there would be no SOCTIIP related construction under the No Action Alternative, there would be no direct impacts and no benefits to short term or long term productivity.

TABLE 4.27-1
BENEFIT/IMPACT COMPARISON

Alternative	Benefits	Impacts/Costs
FEC-W-I&U	• Improvements to 14 arterial intersections. • Improvements to 5 I-5 freeway mainline segments. • Improvements to 1 freeway/tollway ramp. • Short term construction jobs: 17,000 jobs (I) and 21,000 jobs (U). • Travel time savings: 20,000 hr/day (RMV) and 34,000 hr/day (OCP). • Increased safety. • Additional travel route opportunities.	• Deficiencies 4 freeway/tollway ramps (indirect). • Construction costs: $637 million (I) and $798 million (U). • Acquisition/relocation costs: $68 million (I) and $72 million (U). • 32 ha (78 ac) (I) and 32 ha (80 ac) (U) of rated agricultural land. • 109 ha (269 ac) (I) and 111 ha (275 ac) (U) of agricultural reserves. • Impacted riparian habitat: 16 ha (I) and 16 ha (U) • Impacted plant communities: 444 ha (I) and 462 ha (U) • Impacted waters of the US: 12 km (I) and 13 ha (U).
FEC-M-I&U	• Improvements to 14 arterial intersections. • Improvements to 5 I-5 freeway mainline segments. • Improvements to 1 freeway/tollway ramp. • Short term construction jobs: 19,000 jobs (I) and 23,000 jobs (U). • Travel time savings: 20,000 hr/day (RMV) and 34,000 hr/day (OCP). • Increased safety. • Additional travel route opportunities.	• Deficiencies in 4 freeway/tollway ramps (indirect). • Construction costs: $696 million (I) and $842 million (U). • Acquisition/relocation costs: $66 million (I) and $69 million (U). • 21 ha (53 ac) (I) and 24 ha (58 ac) (U) of rated agricultural land. • 123 ha (307 ac) (I) and 133 ha (328 ac) (U) of agricultural reserves. • Impacted riparian habitat: 20 ha (I) and 22 ha (U) • Impacted plant communities: 459 ha (I) and 486 ha (U) • Impacted waters of the US: 15 km (I) and 16 km (U).
CC-I&U	• Improvements to 11 arterial intersections. • Improvements to 5 I-5 freeway mainline segments. • Improvements to 2 freeway/tollway ramps. • Short term construction jobs: 23,000 jobs (I) 31,000 jobs (U). • Travel time savings: 18,000 hr/day (RMV) and 26,000 hr/day (OCP). • Increased safety. • Additional travel route opportunities.	• Deficiencies in 1 arterial intersection. • Deficiencies in 2 freeway tollway ramps. • Deficiencies in 3 freeway/tollway ramps (indirect). • Construction costs: $703 million (I) and $944 million (U). • Acquisition/relocation costs: $419 million (I) and $435 million (U). • Displaced housing units: 593 units (I) and 602 units (U). • Displaced persons: 1,380 persons (I) and 1,405 persons (U). • 1,100 displaced employees. • 106 displaced uses (89 commercial uses). • 18 ha (43 ac) (I) and 22 ha (53 ac) (U) of rated agricultural land.

TABLE 4.27-1
BENEFIT/IMPACT COMPARISON

Alternative	Benefits	Impacts/Costs
		• 84 ha (208 ac) (I) and 110 ha (272 ac) (U) of agricultural reserves. • Impacted riparian habitat: 22 ha (I) and 24 ha (U). • Impacted plant communities: 491 ha (I) and 528 ha (U). • Impacted waters of the US: 17 km (I) and 18 km (U).
CC-ALPV-I&U	• Improvements to 8 arterial intersections. • Improvements to 3 I-5 freeway mainline segments. • Improvements to 1 freeway/tollway ramp. • Short term construction jobs: 15,000 jobs (I) and 18,000 jobs (U). • Travel time savings: 8,000 hr/day.(RMV and OCP) • Additional travel route opportunities.	• Deficiencies in 4 arterial intersections. • Deficiencies in 3 freeway/tollway ramps. • Deficiencies in 3 freeway/tollway ramps (indirect). • Construction costs: $457 million (I) and $560 million (U). • Acquisition/relocation costs: $55 million (I) and $68 million (U). • Displaced housing units: 2 units (I) and 14 units (U). • Displaced persons: 7 persons (I) and 44 persons (U). • 18 ha (43 ac) (I) and 22 ha (53 ac) (U) of rated agricultural land. • 84 ha (208 ac) (I) and 110 ha (272 ac) (U) of agricultural reserves. • Impacted riparian habitat: 20 ha (I) and 23 ha (U) • Impacted plant communities: 324 ha (I) and 370 ha (U) • Impacted waters of the US: 14 km (I) and 15 km (U).
A7C-FEC-M-I&U	• Improvements to 13 arterial intersections. • Improvements to 5 I-5 freeway mainline segments. • Improvements to 2 freeway/tollway ramps. • Short term construction jobs: 17,000 jobs (I) and 21,000 jobs (U). • Travel time savings: 21,000 hr/day (RMV) and 25,000 hr/day (OCP). • Additional travel route opportunities.	• Deficiencies in 4 freeway/tollway ramps (indirect). • Construction costs: $645 million (I) and $800 million (U). • Acquisition/relocation costs: $70 million (I) and $73 million (U). • Displaced housing units: 80 units (I) and 92 units (U) • Displaced persons: 256 persons (I) and 293 displaced persons (U) • 2 ha (6 ac) (I) and (U) of rated agricultural land. • 89 ha (220 ac) (I) and 92 ha (227 ac) (U) of agricultural reserves • Impacted riparian habitat: 17 ha (I) and 19 ha (U) • Impacted plant communities: 447 ha (I) and 464 ha (U). • Impacted waters of the US: 14 km (I) and 15 km (U).

TABLE 4.27-1
BENEFIT/IMPACT COMPARISON

Alternative	Benefits	Impacts/Costs
A7C-ALPV-I&U	• Improvements to 8 arterial intersections. • Improvements to 3 I-5 freeway mainline segments. • Improvements to 1 freeway/tollway ramp. • Short term construction jobs: 28,000 jobs (I) and 30,000 jobs (U). • Vehicle travel time savings: 8,000 hr/day (RMV and OCP). • Additional travel route opportunities.	• Deficiencies in 4 arterial intersections. • Deficiencies in 3 freeway/tollway ramps. • Deficiencies in 3 freeway/tollway ramps (indirect). • Construction costs: $876 million (I) and $924 million (U). • Acquisition/relocation costs: $86 million (I) and $96 million (U). • Displaced housing units: 80 units (I) and 92 units (U) • Displaced persons: 256 persons (I) and 293 displaced persons (U) • 3 ha (8 ac) (I) and 3 ha (9 ac) (U) of rated agricultural land • 171 ha (423 ac) (I) and 183 ha (451 ac) (U) of agricultural reserves • Impacted riparian habitat: 9 ha (I) and 13 ha (U) • Impacted plant communities: 371 ha (I) and 430 ha (U) • Impacted waters of the US: 7 km (I) and 8 km (U)
AIO	• Improvements to 4 arterial intersections. • 11,000 short term construction jobs. • Travel time savings: 5,000 hr/day (RMV) and 8,000 hr/day (OCP). • Increased safety. • Improvements to existing circulation system.	• Deficiencies in 12 arterial intersections. • Deficiencies in 7 freeway/tollway ramps. • Deficiencies in 1 freeway/tollway ramp (indirect). • Construction costs: $351 million. • Acquisition/relocation costs: $171 million. • 263 displaced housing units. • 827 displaced persons. • 200 displaced employees. • 17 displaced uses (4 commercial uses). • 6 ha (14 ac) rated agricultural land. • 15 ha (37 ac) of agricultural reserves. • Impacted riparian habitat: 4 ha. • Impacted plant communities: 230 ha. • Impacted waters of the US: 6 km.
I-5	• Improvements to 9 arterial intersections. • Improvements to 5 freeway/tollway ramps. • Improvements to 9 freeway (I-5) mainline segments. • 43,000 short term construction jobs. • Travel time savings: 20,000 hr/day (RMV) and 22,000 hr/day	• Deficiencies in 2 arterial intersections. • Deficiencies in 4 freeway/tollway ramps. • Construction costs: $1.331 billion. • Acquisition/relocation costs: $1.07 billion. • 838 displaced housing units.

TABLE 4.27-1
BENEFIT/IMPACT COMPARISON

Alternative	Benefits	Impacts/Costs
	(OCP). • Increased safety. • Improvements to existing circulation system.	• 1,970 displaced persons. • 4,150 displaced employees. • 382 uses (336 commercial uses). • Impacted riparian habitat: 6 ha. • Impacted plant communities: 230 ha. • Impacted waters of the US: 5 km.
No Action Alternative – OCP-2000	• No additional costs.	• Deficiencies in 27 arterial intersections. • Deficiencies in 10 I-5 freeway mainline segments. • Deficiencies in 16 freeway/tollway ramps.
No Action Alternative – RMV Development Plan	• No additional costs.	• Deficiencies in 27 arterial intersections. • Deficiencies in 10 I-5 freeway mainline segments. • Deficiencies in 14 freeway/tollway ramps.

Note: (I) denotes Initial
(U) denotes Ultimate
(RMV) assumes 14,000 dus on RMV
(OCP) assumes 21,000 dus on RMV
Source: P&D Consultants (2003).

4.28 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.28.1 METHODOLOGY

Discussion of potential irreversible and irretrievable commitments of resources under the build and the No Action Alternatives is a required topic in an EIR/EIS under both CEQA and NEPA. This Section describes what important resources would be used or removed by the project Alternatives. These include the materials, labor and energy needed to build and operate the project; land and present uses of that land directly taken to build the project; environmental conditions degraded or destroyed by the project; and public service capabilities used by the project.

4.28.2 ANALYSIS

4.28.2.1 Build Alternatives

Resources Used During Construction

The estimated construction costs for the build Alternatives vary from $457 million (CC-ALPV Alternative) to $876 million (A7C-ALPV Alternative) for these Initial Corridors and $559 million (CC-ALPV Alternative) to $944 million (CC Alternative) for these Ultimate Corridors. The construction costs for the AIO and I-5 Alternatives are $351 million and $1.33 billion, respectively. The build Alternatives would provide construction jobs. Construction materials and energy would also be used to build the selected Alternative. For a more detailed discussion on construction cost, refer to Section 4.27: (The Relationship between Local and Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long Term Productivity).

Resources Used For Maintenance and Operations

An undetermined amount of additional labor and materials would be required to maintain the new corridors and the widened facilities under the build Alternatives. There would be energy consumed resulting from maintenance of automobiles using these facilities as well as road maintenance. Under the corridor Alternatives, energy would be consumed during operations and maintenance of the toll collection facilities. Energy used by the build Alternatives would be an irretrievable use of energy. Based on Caltrans and TCA operations of existing facilities, materials and energy use to maintain and operate any of the facilities is expected to be minimal.

Refuse collected along the build Alternatives during routine maintenance would be disposed of in existing landfills, including Prima Deshecha Sanitary Landfill. The amount of refuse and landscape trimmings collected along these Alternatives would represent a very minor part of the planned capacity of the Prima Deshecha Sanitary Landfill, the nearest landfill to the project area (as discussed in Section 4.24 (Affected Environment, Impacts and Mitigation Measures Related to Public Services and Utilities.)

Land and Land Uses Taken

Right-of-way would be required for the improvements proposed under the build Alternatives. Depending on the Alternative, residential units, commercial/industrial uses and/or agricultural land would be taken to build the Alternatives. Section 4.4 (Affected Environment, Impacts and Mitigation Measures Related to Socioeconomics and Environmental Justice) discusses the land and uses taken. Although relocation of the residences and businesses affected would be possible within the local area, the conversion of this land to right-of-way would effectively and practically be an irreversible commitment of this land to transportation facilities.

Environmental Conditions Degraded or Destroyed

The build Alternatives would result in adverse impacts representing a degradation or destruction of existing environmental conditions, thereby resulting in an irretrievable loss of resources. Impacts of the SOCTIIP Alternatives to the environment include potential loss of cultural and biological resources, traffic, long term air quality impacts, loss of visual quality, and increased energy and mineral use.

Public Service Capacities Affected

The build Alternatives would require disposal of materials (i.e., excess soil and rock material) associated with demolition that cannot be recycled. Because landfill capacity is finite, deposition of the total excess material in area landfills for some Alternatives would constitute a substantial amount of material and would be an irretrievable commitment of those build Alternatives related to landfill capacity.

Some SOCTIIP corridor Alternatives cross Prima Deshecha Sanitary Landfill. Impacts from refuse capacity reductions at the Landfill as a result of construction of these Alternatives are discussed in detail in Section 4.24.

The additional road facilities under the build Alternatives would require additional commitment of law enforcement service and patrol resources. At the same time, there would be a beneficial effect on fire protection and emergency medical services through the enhanced transportation network.

Cumulative Impacts Due To Related Projects/Growth Inducement

The SOCTIIP corridor Alternatives have the potential to facilitate or support growth in localized areas through the provision of enhanced accessibility to specific parts of the study area. However, while all corridor SOCTIIP Alternatives may affect the localized rate and location of growth because development would be expected to cluster in the vicinity of the transportation system facilities that enhance accessibility, the regional growth rate would be expected to remain stable. The potential for cumulative impacts, as a result of the SOCTIIP build Alternatives is discussed in detail in Section 5.0 (Cumulative Impacts).

Beneficial Effects

The commitment of these resources is based on the concept that residents in the immediate area and region will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility and safety, savings in time, and alternative access for emergency services which are anticipated to outweigh the commitment of these resources.

4.28.2.2 No Action Alternatives

Because the No Action Alternatives would not include any SOCTIIP related construction, no additional or incremental increase in irreversible or irretrievable commitment of resources would occur under these Alternatives.

SECTION 5.0
CUMULATIVE IMPACTS

SECTION 5.0
CUMULATIVE IMPACTS

5.1 OVERVIEW OF CUMULATIVE IMPACTS

5.1.1 DEFINITION OF CUMULATIVE IMPACTS

Construction and operation of any of the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) build Alternatives would result in direct and indirect impacts that could contribute to cumulative effects to resources when combined with other related past, present and reasonably foreseeable future actions. For this analysis of the potential cumulative effects of the SOCTIIP Alternatives, the following definition of cumulative impact in the Council on Environmental Quality (CEQ) regulations governing the implementation of the National Environmental Policy Act (NEPA) (40 CFR 1508.7) was used:

> "...the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The analysis of the cumulative effects of the SOCTIIP Alternatives also incorporates the suggestions in the CEQ's handbook titled "Considering Cumulative Effects Under the National Environmental Policy Act" (January 1997), which is intended as an informational document rather than formal agency guidance. In addition, the cumulative effects of the SOCTIIP Alternatives were assessed in accordance with the Federal Highway Administration (FHWA) "Position Paper on Secondary and Cumulative Impact Assessment" (August 20, 1992). Based on the CEQ and FHWA discussions of cumulative effects, the following principles were applied to the assessment of cumulative effects of the SOCTIIP Alternatives:

(1) Cumulative effects typically are caused by the aggregate effects of past, present and reasonably foreseeable actions. These are the effects (past, present and future) of the proposed action on a given resource *and* the effects (past, present and future), if any, caused by all other related actions that affect the same resource.

(2) When other related actions are likely to affect a resource that is also affected by the proposed action, it does not matter who (federal, non-federal or private) has taken the related action(s).

(3) The scope of cumulative effects analyses can usually be limited to reasonable geographic bounds and time periods. These boundaries should extend only so far as the point at which a resource is no longer substantially affected or where the effects are so speculative as to no longer be truly meaningful.

(4) Cumulative effects can include the effects (past, present and future) on a given resource caused by similar types of actions (e.g., air emissions from several individual highway

projects) and/or the effects (past, present and future) on a given resource caused by different types of actions (e.g., air emissions from a highway project, a solid waste incinerator and a mining facility).

5.1.2 IDENTIFICATION OF CUMULATIVE PROJECTS

As discussed in Section 5.2, the analysis of cumulative effects uses two methods (1) adopted forecasts, and (2) analysis of specific projects. This cumulative impacts analysis examines past, present and reasonably foreseeable future projects in the areas which have the potential to contribute to cumulative adverse impacts. The primary basis for this cumulative analysis is the adopted OCP-2000 forecasts. The forecast is supplemented by a list of cumulative projects. This analysis used the best available information to assess these projects and their potential adverse impacts. Depending on the status of the individual projects, each of the projects considered in this cumulative impacts analysis is supported by different levels of information. Public documents, conceptual plans, documents or applications prepared for environmental or planning reviews or regulatory approvals, and consultations with project applicants and government agencies were the primary sources of this information. As shown in the summary tables in this Section, some environmental documents did not include analysis of certain environmental parameters. If the project environmental documents did not address certain parameters, the assumption was made that there would be no impacts related to that parameter as a result of that project. In some cases, no environmental document was available for a proposed project (such as the RMV development or a number of proposed Caltrans projects) and general assumptions were made about the potential impacts of those projects in the overall cumulative impacts analysis. For example, the traffic, air and noise analyses assumed certain levels of development on RMV, and the biological resources analysis assumed certain conservation/preservation alternatives as part of the cumulative impacts analyses. The impacts of past projects are accounted for in the existing conditions and historical perspective on the status of various resources, such as sensitive species and habitats.

The projects identified in the study area identified for this analysis are:

- Projects that are reflected in build out of south Orange County in accordance with Orange County Projections-2000 (OCP-2000).

- Projects that are of a similar nature, could affect similar resources and/or are located in geographic proximity to the SOCTIIP build Alternatives.

- Projects that have the potential to generate environmental impacts and, when considered collectively with the SOCTIIP build Alternatives, could result in or contribute to cumulative adverse environmental impacts.

- Proposed projects which have been proposed and/or received or are pending environmental approval and/or regulatory reviews or approvals.

Based on these criteria, in addition to OCP-2000 build out, reasonably foreseeable projects in the SOCTIIP study area region were identified. These projects are land use development projects

and transportation projects, as described in the following Sections. The approximate geographic boundaries of the area covered by these projects extends from the vicinity of the site of the previous Marine Corps Air Station (MCAS) El Toro northeast of the Interstate 5 (I-5)/Interstate 405 (I-405) interchange south along I-5 to the north part of Marine Corps Base (MCB) Camp Pendleton. The SOCTIIP study area extends east from I-5 to the County boundary, including the undeveloped parts of the Rancho Mission Viejo (RMV) property. This study area is shown on Figure 5.1-1. Figures and tables cited in this Section are provided following the last page of text in this Section.

The existing natural, physical, socioeconomic and environmental conditions in this study area, as described in detail in Section 4.0 (Affected Environment, Environmental Consequences and Mitigation Measures), serve to define the baseline conditions for this cumulative impacts analysis. The SOCTIIP build and the No Action-OCP-2000 Alternatives assume build out of the Master Plan of Arterial Highways (MPAH) and the level of land use in the OCP-2000 demographic projects. The No Action-RMV Alternative assumes buildout of the MPAH and 14,000 dwelling units (dus) on the RMV, instead of the 21,000 dus assumed on RMV under OCP-2000. Build out of the MPAH and the differences and use assumptions by 2025 would form the background conditions in 2025. Therefore, the current existing conditions in the SOCTIIP study area are not the same as the background conditions assumed in 2025 under the SOCTIIP build and No Action Alternatives.

The analysis for San Diego County encompasses the north part of MCB Camp Pendleton, which includes both the active training areas on MCB Camp Pendleton and the San Onofre State Beach lease area. No other part of San Diego County is included in the base line study area for any of the environmental parameters except for analysis which includes watersheds or biological resources habitat and species issues.

5.1.3 CUMULATIVE LAND DEVELOPMENT PROJECTS

5.1.3.1 Development in Orange County

South Orange County has experienced relatively rapid growth over the last two decades. This period of rapid growth resulted in the conversion of undeveloped areas that have historically been used for livestock and ranching operations, crop production or other agricultural uses, to suburban and urban uses. The area below the foothills was also rich with mineral resources and mining and extraction operations have historically taken place in southern Orange County along San Juan Creek and in Arroyo Trabuco. These operations have also been or are in the process of gradually being phased out as these areas are developed in suburban and urban uses.

Table 5.1-1 is a list of major land use projects that have been approved for development in the SOCTIIP study area. These projects involve land use changes or intensification which are consistent with the Orange County Projections – 2000 (OCP-2000) demographic forecasts for this part of Orange County. While some individual projects may involve a greater intensity than currently allowed by the General Plan or OCP-2000, many projects build out at less than the allowed density. These differences balance out such that the use of OCP-2000 provides a reasonable prediction of future development intensity. Table 5.1-2 shows some additional,

smaller projects proposed in the study area which are either infill projects or build out of property which has General Plan or zoning levels of land use approvals. The general locations of these projects in the SOCTIIP study area are shown on Figure 5.1-1. This growth is expected to continue as pressure for new housing increases with the relatively strong job market and economy that Orange County has experienced in recent years. The County of Orange General Plan and Orange County Projections-2000 (OCP-2000, Center for Demographic Research, adopted June 22, 2001) forecast build out of Orange County by 2025.

While there are some remaining undeveloped areas subject to infill development, there are only two major areas left in the cumulative impacts study area that are undeveloped and/or unplanned:

- North Ranch Policy Plan area directly east of and in the future annexation area of the City of Orange. This area, which is owned by The Irvine Company, is included in the cumulative analysis for relevant impacts for traffic, air quality and noise.

- The South Ranch area on the 9,254 ha (22,850-acre) Rancho Mission Viejo (RMV) property immediately east of the Cities of Mission Viejo and San Juan Capistrano. This area is not designated at this time for future annexation to any city. The South Ranch area is in the SOCTIIP study area and the cumulative impacts study area, and is referred to herein simply as "RMV".

These two parcels represent the last land use intensification/major growth areas in the cumulative impact study area; the rest of the area is either developed or committed to permanent open space uses, or has an approved plan for development. These two parcels are both projected to develop in the future as indicated in the adopted regional growth projections (OCP-2000). These two parcels represent the greatest remaining potential for land use intensification in Orange County. As discussed throughout Section 4.0 (Affected Environment, Environmental Consequences and Mitigation Measures), the RMV has submitted a development plan to the County of Orange for the RMV (South Ranch) which proposes 14,000 dwelling units (dus) on this property. Therefore, it is expected that RMV land uses will change from agriculture, ranching and mining uses to urban and suburban land uses in the future.

5.1.3.2 Historical Development Trends in South Orange County

Industry/Employment Factors

In the past, Orange County was a rural county supported primarily by an agricultural economy, and was an agricultural community of statewide and national significance. Soil fertility and climate have contributed to a successful economic base focused on agricultural. Some of the first major developments in Orange County were agriculturally based in either crop production or ranching activities. The agricultural area and the first developed areas in the County were concentrated near the coast or in the river plain bordering the Santa Ana River. However, the 1930s and 1940s were marked by radical agricultural change, with declines in some crop production except for citrus production, which peaked during this time.

The long decline of agriculture in the County, which began in the mid-1940s, was stemmed briefly in the 1950s, but began again in the 1960s and 1970s with the rapid suburbanization of much of the County as the economic base dramatically shifted to white collar industry such as aero space and service industry such as tourism. As the shift continued away from an agricultural base to other industries (e.g. technical, service, information), development rapidly extended south and east inland from the coast in the 1950's, and today, continues that trend with the proposed development of RMV and the continuing development of the foothill areas of Orange County. Growth projections through 2025 indicate the continued trend of urbanization of the County.

This growth trend has resulted in the loss of many natural resources and an increase in the effects of human activity such as noise and air pollution. These historic effects are accounted for in the context of cumulative impacts as they relate to land use, farmland and agriculture, noise, air quality, habitat and biological resources, flood plains, water quality, archaeological resources and military uses.

New Cities in South Orange County

The rapid growth in southern Orange County predominately occurred from the mid 1980s to the present. This is illustrated by the large number of new cities established in south Orange County during this period. With the exception of the Cities of Irvine, Laguna Beach, San Clemente, Laguna Hills and San Juan Capistrano, virtually all the cities in the SOCTIIP study area were incorporated in the late 1980s or 1990s. These are the Cities of Lake Forest (incorporated 1991), Mission Viejo (1988), Dana Point (1989), Laguna Niguel (1989), Laguna Woods (1999) and Rancho Santa Margarita (2000). Most of these incorporations consisted of one large planned community or the consolidation of several planned communities into one city. In addition, the growth and annexation patterns for the Cities of San Juan Capistrano and San Clemente extend predominately inland.

To understand the impetus for the recent incorporations by many Orange County communities, it is important to understand the maturing process of an area or community and when it is eligible and/or desirable to incorporate. Until an area becomes a city, it is under the jurisdiction of the County of Orange with political representation by the County of Orange Board of Supervisors. Once an area becomes a city, it is then represented by the local electorate, usually a city council elected by the residents of the newly established city.

Nearly all the new south Orange County cities began as planned communities. Virtually all were ranches, farms or both within the last 20 years, some with small communities supporting those operations. The land in these unincorporated communities was then subdivided and developed. As the communities matured and built out, they were incorporated as individual cities.

5.1.3.3 Other Major Governmental Actions in the Project Area

As discussed earlier in Section 1.0, there are three other major governmental actions that are being processed in the study area involving the 9,254 ha (22,850 ac) RMV property. These are the proposed development plan for the Rancho Mission Viejo (RMV) property, the South

Subregion Natural Community Conservation Plan (NCCP) and Special Area Management Plan (SAMP)/Master Streambed Alteration Agreement (MSAA). It should be noted that these actions, while related, are being coordinated through the different agencies which are implementing them. Therefore, they are being processed concurrently, but the schedules for these actions may change and they may not be completed at the same time. The following is a summary of these three actions all of which have separate environmental review associated with CEQA as well as NEPA for the NCCP and SAMP. An NOP for the RMV development plan was released on February 24, 2003 and a Notice of Intent to prepare an EIS/EIR for the NCCP and SAMP was released on November 8, 2001.

The proposed RMV development, Southern NCCP and the SAMP/MSAA are related to the SOCTIIP corridor alternatives primarily by geography because these proposed projects are occurring in the same general area. The RMV development, NCCP and SAMP/MSAA are much more closely related with one another than any of them are to the proposed corridor alternatives. The proposed corridor alternatives are not dependent on and do not rely in any way on the approval of any of these processes. Although implementation of any of the SOCTIIP Alternatives would be coordinated with some of the same resource agencies and the landowner of RMV, the timing and development of any of these other actions would not affect the implementation of the SOCTIIP Alternatives, which is entirely independent. In the event that a SOCTIP corridor alternative is implemented, the mitigation from the EIS/SEIR and permits would complement large scale plans associated with these other planning efforts.

Proposed Development Plan for Rancho Mission Viejo

In 2001, conceptual land use plans for RMV were submitted to the County of Orange (the land use jurisdiction and Lead Agency) proposing 14,000 dwelling units (dus) in a community of mixed use villages on the 9,254-hectare (22,850-acre) RMV property. The village concept combines high density residential, low density residential, commercial and office uses into integrated areas. The proposed Land Use Map and Statistical Table for the proposed development plan are shown in Section 4.2 of this EIS/SEIR. The plan proposes development on about half of the ranch with the remainder left in open space supporting the existing cattle ranching operations, public open space, (recreation or parks) and private open space. The actions proposed to implement the RMV Plan include amendments to the County's General Plan and Zoning, cancellation of Williamson Act agreements and approval of a development agreement. These were identified as the approvals to be covered in the forthcoming EIR, as stated in the February 24, 2003 NOP.

South Subregion NCCP

The NCCP South Subregion encompasses the area from I-5 from the City of Lake Forest to Dana Point to the coast and the eastern boundary of the City of Lake Forest and extending to the County boundary in Cleveland National Forest (CNF). Although this Subregion encompasses a large area, much of it is already developed or already held in public lands such as the CNF. The primary undeveloped area in the South NCCP subregion is the RMV property, which is why the NCCP is being developed and concurrently processed with the RMV development proposal. The

County, in conjunction with CDFG will act as the lead agency for the preparation of the Southern NCCP.

The Orange County Southern Subregion NCCP/HCP program will be completed in two phases: an interim phase and an implementation phase. The interim phase is defined as the period of time between the listing date of the gnatcatcher and the approval of the subregional NCCP program by the USFWS. During the interim phase, the USFWS may approve incidental habitat loss associated with development, provided the loss does not exceed the five percent cumulative maximum established for the Southern Subregion and is adequately mitigated.

The implementation phase of the NCCP/HCP will begin when the Orange County Southern Subregion NCCP/HCP program is completed and approved. The design of the NCCP/HCP reserve is currently being developed. The reserve design will attempt to preserve the most biologically rich areas in the subregion while identifying those areas suitable for development.

The NCCP/HCP documentation is in three parts: (1) the NCCP/HCP, which sets forth the project need/purposes, describes the biological setting and outlines the planning process and conservation strategy; (2) the Joint EIR/EIS for the NCCP/HCP; and (3) the NCCP/HCP Implementation Agreement (IA) which specifies the enforceable measures/mechanisms required to implement the NCCP/HCP. In the Southern Subregion, landowners (including private and public agency owners) would be affected by the NCCP/HCP as lands are designated for permanent preservation or development. Several of these landowners contributed funding and services to support completion of the NCCP/HCP, EIR/EIS and IA, including the County of Orange, RMV and the Santa Margarita Water District (SMWD).

On October 30, 2002, the USFWS and ACOE held an informational meeting on the resource planning for the South Subregion NCCP and the SAMP. Ten candidate plans were presented which ranged from development reflecting the RMV proposal to a very low density of development over a very limited development area. According to the County's website for the South Orange County Coordinating Planning Process, these alternatives will be evaluated in the South NCCP and SAMP environmental studies (http://pdsd.oc.ca.gov/SOCCPP, accessed June 2, 2003). The County of Orange is a cooperating agency on these two efforts.

Special Area Management Plan/Master Streambed Alteration Agreement

A precursor to the proposed SAMP/MSAA was prepared in 1999. This 1999 draft SAMP was a comprehensive wetland planning effort prepared for the San Juan Creek and parts of the San Mateo Creek Watersheds by the ACOE. The 1999 draft SAMP provides identification and characterization of the aquatic resources, evaluation of alternatives for impacts to aquatic resources, and identification of the aquatic resources reserve program in these watersheds. The 1999 draft SAMP identifies wetlands and Waters of the Unite States (WoUS) by probability, as well as uplands and unregulated areas. It also identifies aquatic resources in these watersheds. WoUS are subject to regulation as defined in Section 404 of the CWA (33 CFR Part 328.3) and wetlands are a subset of WoUS. The 1999 draft SAMP information is being incorporated into the SAMP/MSAA and the EIS/EIR for that effort.

The ACOE and CDFG are the lead agencies for the preparation of the Aquatic Resources Restoration/ Management Plan, Record of Decision on the NEPA EIS, 404 Permits and Master Streambed Alteration Agreement for the SAMP/MSAA. According to published information on the SOCCPP web site, the following principles are being applied to the planning and formation of the SAMP/MSAA.

1. No net loss of acreage and functions of waters of the United States (WoUS).
2. Maintain/restore hydrologic, water quality, and habitat integrity of WoUS.
3. Protect headwater areas.
4. Maintain/protect/restore diverse and contiguous riparian corridors.
5. Maintain and/or restore floodplain connection.
6. Maintain and/or restore sediment sources and transport equilibrium.
7. Maintain adequate buffer for the protected riparian corridors.
8. Protect riparian areas and associated habitats supporting state/federally listed species and associated critical habitat.

5.1.4 CUMULATIVE TRANSPORTATION PROJECTS

As the County's development plans build out, so will the County's transportation network. The Master Plan of Arterial Highways (MPAH) is the county-wide plan for the traffic and transportation network, which is overseen by the Orange County Transportation Authority. The MPAH identifies existing and planned transportation facilities. For the SOCTIIP study area, some of the planned facilities already have full or partial funding and will be constructed in the near future. These "committed" facilities are listed in Table 5.1-3. The planned facilities that do not have funding or will be constructed when future development is constructed are the "non-committed" facilities listed in Table 5.1-4.

In addition, the California Department of Transportation (Caltrans) has a number of improvement projects in the SOCTIIP study area related to the operation of transportation systems that it controls, such as Interstate 5 (I-5). These projects are listed in Table 5.1-5. Some of these projects are close to completion and some are still being studied. Table 5.1-5 also provides the status of the environmental documentation prepared for each project listed and/or its stage of study.

5.2 ASSESSING CUMULATIVE IMPACTS

NEPA and CEQA both require the analysis of the potential cumulative impacts of a proposed project and other projects in the area. The FHWA CEQ methodology and CEQA both list two methods of analyzing cumulative impacts.

One method is based on adopted forecasts, such as those in a General Plan and/or an official population or demographic forecast, which is the primary method used for this EIS/SEIR. The forecast method takes into consideration adopted forecasts or projections in a given area and evaluates cumulative impacts by environmental parameter in the relative context of what impacts development in accordance with the forecasts or projections will have on each environmental parameter. This is the basis for all the quantitative cumulative analysis, for example, traffic, air

quality and noise. The other method is listing of recent and proposed development projects and analyzing each environmental parameter with the total effect from the other projects considered with the effects of the proposed project. This is the purpose of the listings of the projects shown on Figure 5.1-1 and described in detail in Tables 5.1-1 through 5.1-5. The projects list was used in conjunction with the forecast method for those topics where geographic location warranted additional analysis. For example, the cumulative visual impact assessment was based primarily on the forecast method with additional analysis of specific cumulative projects because of the importance of the projects directly adjacent to the SOCTIIP in evaluating cumulative impacts. Both methods are used in evaluating cumulative impacts in this Section, depending on which is more appropriate for the environmental parameter being analyzed.

In addition, for environmental parameters such as traffic, air quality, noise, waterways, hydrologic systems, floodplains and water quality, the cumulative impact study area is often a much larger study area because of the regional nature of the environmental parameter. In these instances, attempting to reduce the study area to capture only the project impacts in relation to the immediate project area does not provide the appropriate context for the impacts and the characteristics of the parameter. For example, the study area for air quality is the Southern California Air Basin (SCAB), which is not limited to just one county, city or jurisdictional boundary. For the cumulative analysis for environmental parameters that have a more regional or subregional context for impacts, the study area will be the same for the project related impacts and the cumulative impacts. The cumulative study area for each environmental parameter is identified at the beginning of the cumulative impacts discussion for each environmental parameter subsection.

5.3 CUMULATIVE IMPACTS

In the beginning of each of the following Sections, a brief discussion on the methodology used for assessing cumulative impacts related to each environmental parameter is provided. For most parameters, the forecast method was used. In most instances, the terms "build Alternatives" and "SOCTIIP Alternatives" refer to all of the SOCTIIP build Alternatives. There are a few occasions where the cumulative impacts do not apply equally to all the build alternatives. In some cases, there are differences between the impacts of the alternatives which propose the extension of the existing FTC-South from Oso Parkway (referred to as "corridor Alternatives" and which include the Initial and Ultimate) and the "non-corridor" Alternatives (AIO and I-5). When that is the case, the individual alternative is specified. Generally, the corridor Alternatives have the same or similar cumulative impacts due to the close proximity of the alignments and the similarities of the areas which they traverse. This results in few examples of the corridor Alternatives being identified specifically. In addition, when a particular alternative results in a cumulative impact, it is called out specifically in the discussion.

5.3.1 CUMULATIVE IMPACTS RELATED TO TRAFFIC AND CIRCULATION

As discussed in Section 3.0 (Traffic and Circulation), traffic impacts were evaluated with cumulative build out. Section 3.2 (Methodology and Assumptions) describes the traffic model including the growth assumptions and variables associated with the growth assumptions and future improvements to the circulation system in the study area. Section 3.2 confirms the

cumulative nature of the traffic modeling and evaluation of impacts to the circulation system. Traffic is an environmental parameter for which project impact analysis is inherently cumulative because it is based on build out of the study area in accordance with adopted forecasts and projections. The study area for potential cumulative adverse impacts to traffic and circulation includes the existing freeway and arterial circulation system as discussed in Section 3.0 and shown on Figure 3.2-1. Refer to the analysis in Section 3.0 for the complete discussion of cumulative impacts related to traffic, based on the cumulative impacts of the SOCTIIP alternatives and other land use assumptions. Those effects are summarized briefly in the following Section. As discussed earlier, traffic and circulation levels are related to the growth and development trends as discussed in Section 5.1.3.

5.3.1.1 Summary of Beneficial Traffic Effects

As discussed in Section 3.4.3 (Long Range Traffic Conditions – No Action Alternative), peak hour deficiencies are forecast throughout the study area under 2025 conditions based on the No Action Alternative. When a build Alternative eliminates the need for improvements that would be required to address a given deficiency under the No Action Alternative, that Build Alternative is considered to have a beneficial effect. In this analysis, a beneficial effect is considered to occur at a given circulation facility if the following two conditions are satisfied:

- The facility is forecast to operate at a deficient LOS in 2025 under the No Action Alternative.
- The facility is forecast to operate at an acceptable (non-deficient) LOS in 2025 under the given build Alternative.

The facilities where beneficial effects occur under the build Alternatives compared to the No Action Alternative are summarized in Table 3.4-5. Table 3.4-5 lists the locations identified as having deficiencies in the No Action Alternative and indicates under each build Alternative whether or not the deficiency is alleviated and, if so, under which scenario(s). The I-5 Alternative shows beneficial effects at 38 locations, or 76 percent of the 50 locations listed in Table 3.4-5. The build Alternatives that include the FTC-S from Oso Parkway to I-5 (the FEC-M, FEC-W and A7C-FEC-M Alternatives) show beneficial effects at 32 to 33 locations (64 to 66 percent of the 50 locations listed in Table 3.4-5), and the build Alternatives that include the FTC-S from Oso Parkway to Avenida La Pata (the CC-ALPV and A7C-ALPV Alternatives) show beneficial effects at 18 locations (36 percent of the 50 locations listed in Table 3.4-3). Beneficial effects occur at 6 locations (12 percent of the 50 locations) under the AIO Alternative.

5.3.1.2 Summary of Adverse Traffic Impacts

The adverse traffic impacts of the build Alternatives were identified by comparing 2025 peak hour traffic conditions based on the No Action Alternative with 2025 peak hour traffic conditions under each of the Build Alternatives. A facility on the circulation system is adversely impacted if the following two conditions are satisfied:

- The facility is forecast to operate at a deficient LOS in 2025 under the build Alternative.

- Compared to the No Action Alternative, the contribution to the deficient LOS by the build Alternative exceeds the impact thresholds discussed in Section 3.2.3.1 (Impact Criteria for Operations).

The adverse impacts of the Build Alternatives are separated into the following two categories:

- Direct adverse impacts.
- Indirect adverse impacts.

This distinction is important because it affects the manner in which mitigation measures are established. The following discusses these two types of adverse impacts.

Direct Adverse Impacts.

These are adverse impacts that have some form of identifiable connection or "nexus" with the circulation improvements featured in a given build Alternative. Typically, this type of impact occurs when the traffic causing the adverse impact uses at least part of the circulation facilities constructed and/or improved in that build Alternative. The build Alternatives that propose arterial road improvements beyond those shown in the MPAH are examples. Increased vehicle traffic on the improved arterials will use other local arterials in the vicinity to access the improved facilities and thereby add traffic on those other local arterials. As a result, there is a nexus between the added traffic on the improved facility and the traffic causing an impact on those other local arterials.

Indirect Adverse Impacts.

These adverse impacts occur as a result of a change in travel patterns due to a new facility that is constructed in a given build Alternative. While the impacts are generally small in magnitude, they are nevertheless adverse impacts under the defined performance criteria. The most common example occurs under a build Alternative in which the FTC-S diverts traffic from I-5, thereby reducing the level of congestion on I-5. As a result, vehicle traffic that may otherwise avoid I-5 would choose to use I-5, resulting in additional traffic at some ramps and ramp intersections serving I-5. While some I-5 ramps and ramp intersections are deficient under the No Action Alternative, a build Alternative may, in certain cases, worsen those deficiencies because of this additional traffic. Because none of this added traffic has origins or destinations in the vicinity of the circulation facilities that are constructed in the given build Alternative, the impacts of this added traffic are considered to be indirect. There is no nexus between this increased traffic and the facility being built in the given build Alternative, but simply a shift in travel routing due to I-5 having additional capacity compared to the No Action Alternative.

Table 3.4-6 summarizes the locations where direct and indirect adverse impacts occur under the build Alternatives compared to the No Action Alternative. As shown, no I-5 mainline segments in the study area are adversely impacted by the SOCTIIP build Alternatives. For the build Alternatives that include the FTC-S from Oso Parkway to I-5, no direct adverse impacts occur in the Alternatives with a FTC-S connection to I-5 via the Far East Corridor alignment (the FEC-M, FEC-W and A7C-FEC-M Alternatives), and direct adverse impacts occur at three locations in the

Alternatives with a FTC-S connection to I-5 via the Central Corridor alignment (the CC Alternative). For the build Alternatives that include the FTC-S from Oso Parkway to Avenida La Pata (the CC-ALPV and A7C-ALPV Alternatives), direct adverse impacts occur at 10 locations. For the build Alternatives that do not include the FTC-S toll road, direct adverse impacts occur at 19 locations under the I-5 Alternative and 24 locations under the AIO Alternative.

5.3.1.3 Net Beneficial Effects and Adverse Impacts for Traffic

The following lists the build Alternatives in general order from those alternatives with the highest number of beneficial effects and lowest number of adverse impacts to those alternatives with the lowest number of beneficial effects and highest number of adverse impacts. Alternatives that are listed together have relatively the same magnitude of beneficial effects and adverse impacts.

- The build Alternatives that include the FTC-S toll road from Oso Parkway to I-5 (the FEC-M, FEC-W, CC and A7C-FEC-M Alternatives) and the I-5 Alternative.
- The build Alternatives that include the FTC-S toll road from Oso Parkway to Avenida La Pata (the CC-ALPV and A7C-ALPV Alternatives).
- The AIO Alternative.

5.3.2 CUMULATIVE IMPACTS RELATED TO LAND USE

5.3.2.1 Cumulative Impacts Related to the Conversion of Undeveloped Land

The study area for potential cumulative adverse impacts related to land use is the area covered by the cumulative projects listed in Tables 5.1-1 to 5.1-5 and shown in Figure 5.1-1. Trends in south Orange County over the last 50 years have been for the development of previously vacant or agricultural lands in urban and suburban uses including residential, commercial, industrial and open space uses and lands committed to infrastructure (roads, utilities, schools, etc) in support of those urban and suburban land uses. The major land use projects in Table 5.1-1 and the OCP-2000 demographic projections continue the trend for the development of south Orange County in suburban and urban land uses.

The potential for the SOCTIIP and the cumulative projects in Tables 5.1-1 to 5.1-5 to contribute to or result in cumulative adverse impacts related to land use was identified based on consideration of trends related to land use and the potential for adverse land use impacts related to the cumulative projects in the study area (based on OCP-2000 and the cumulative projects lists) and the SOCTIIP build Alternatives. These projects are representative of recent past, present and future projects in the study area as discussed earlier in Section 5.1.3.

The cumulative development projects in OCP-2000 and as shown in Tables 5.1-1 to 5.1-5 would contribute to the conversion of some of the last remaining undeveloped land in south Orange County that is not dedicated to open space uses. Table 5.3.1 shows the impacts to land use and mitigation measures associated with those impacts as shown in environmental and planning documents for those projects.

Development of the RMV property is expected over the next 25 years, based on the 14,000 dus development plan proposed by the property owner. As of September 2003, proposed development plans for the property provided only general information on the location and type of that proposed development on the RMV. Open space reserves associated with the County's proposed Natural Community Conservation Plan (NCCP) are also assumed to be provided on the RMV although a wide range of NCCP Reserve systems is still under evaluation.

All the SOCTIIP corridor Alternatives traverse RMV and, therefore, would contribute to a cumulative land use impact as a result of converting currently undeveloped land to an urban uses. The Arterial Improvements Only (AIO) Alternative would also incrementally contribute to cumulative impacts on the conversion of undeveloped land. However, this is not considered to be an adverse impact for two reasons. First, except for the RMV property, the study area is either developed or planned for development (refer to Section 6.4.2.2 in Growth Inducing Impacts). Second, the conversion of land to a road use for the corridor Alternatives would not change the overall balance of different land uses planned in the adopted forecast, OCP-2000. This is also consistent with the CMP and Growth Management Element requirements for the provision of infrastructure.

The Interstate 5 (I-5) Widening Alternative would not contribute to the conversion of undeveloped land because there is very little undeveloped land along this corridor. There would be no cumulative impacts to land use related to the conversion of undeveloped land to urban and suburban land under the I-5 Alternative and the No Action Alternatives. This is because this Alternative would not result in any construction of transportation improvements in currently undeveloped areas.

The two No Action Alternatives would not result in direct or indirect land use impacts because they would not result in the construction or implementation of any SOCTIIP related transportation improvements in the study area. The No Action Alternatives are not anticipated to affect planned land uses because the applicable local jurisdictions have required or will require those uses to include sufficient transportation facilities to meet their needs, independent of the SOCTIIP Alternatives.

5.3.2.2 Cumulative Impacts Related to Residential Uses

There is substantial existing development in the SOCTIIP study area, especially residential uses. Orange County in general suffers from a shortage of housing and, specifically, a shortage in affordable housing. The Southern California Association of Governments (SCAG) has identified a jobs-housing imbalance in this region, defined as when there are more jobs in an area than there is available housing to support those jobs.

The SOCTIIP build Alternatives which would affect existing residential uses or areas currently approved for residential uses are the Central Corridor-Complete (CC), Central Corridor-Avenida La Pata Variation (CC-ALPV), Alignment 7 Corridor-Avenida La Pata Variation (A7C-ALPV), AIO and I-5 Alternatives.

The remaining build Alternatives (Far East Corridor-West (FEC-W), Far East Corridor-Modified (FEC-M) and Alignment 7 Corridor-Far East Crossover-Modified (A7C-FEC-M) Alternatives) would not affect existing residential uses or areas currently approved for residential uses. However, these corridor Alternatives do cross RMV and could impact areas proposed for residential uses under the Ranch Plan. Because the Ranch Plan is in the planning stages and has no development approvals as of September 2003, this is not considered to be an adverse impact of these corridor alternatives because it is reasonable to assume that the proposed development, including residential uses, on the RMV could be adjusted to accommodate a corridor without a reduction in the total number of dus proposed under the Ranch Plan.

In summary, there would be an adverse impact on residential uses as a result of those SOCTIIP build Alternatives which would result in the acquisition of existing housing or the acquisition of areas approved for housing as discussed in Section 5.3.4.1. Residential uses continue to be developed throughout Orange County, in Planned Communities (PCs) and infill/redevelopment projects. The loss of housing associated with the SOCTIIP Alternatives is somewhat offset by the continued development of housing throughout the County.

The two No Action Alternatives would not contribute to cumulative impacts on the housing shortage because they do not propose any SOCTIIP improvements and they would not require the acquisition of any land in the study area for any SOCTIIP improvements.

5.3.2.3 Cumulative Impacts Related to Other Major Land Uses in the SOCTIIP Study Area

San Onofre State Beach (SOSB)

The SOCTIIP Alternatives that traverse SOSB adversely impact this existing land use. These are the FEC-W, FEC-M and A7C-FEC-M Alternatives. These cumulative impacts are due to the reduction of acreage of land for recreational uses as a result of these Alternatives. Past projects (I-5) have significant noise impacts on SOSB although the construction of I-5 pre-dated the establishment of SOSB. None of the other foreseeable cumulative projects would result in adverse impacts on SOSB or other public recreation uses in the study area. Therefore, the SOCTIIP Alternatives will not contribute to a cumulative adverse impacts on SOSB, but the SOCTIIP build Alternatives will incrementally contribute to the impacts of I-5 on SOSB. Refer to Section 5.3.25 (Cumulative Impacts Related to Recreation Resources) for analysis of the potential cumulative impacts of the SOCTIIP Alternatives and other cumulative projects related to recreation resources.

MCB Camp Pendleton

MCB Camp Pendleton is a unique land use due to the military training conducted on the Base. The layout of the Base is designed to provide a safety buffer around the impact areas (areas where projectile weapons, explosive ordnance and artillery are used), which are located at the center of the Base. This buffer includes the SOSB outlease area. As discussed in Section 4.21 (Affected Environment, Impacts and Mitigation Measures Related to Military Uses), the Base is very sensitive to encroachment, notwithstanding that, in the March 4, 1992 "Statement of Intent," Camp Pendleton indicated that they could agree to the evaluation of an alignment on the

Base, if that alignment met the conditions in the 1988 Commandant Letter and the 1992 "Statement of Intent." However, the SOCTIIP alignments which generally follow the FEC-M alignment would all have cumulative impacts to this land use by impacting the buffer that SOSB provides and creating a physical barrier on the northern boundary of the Base. These are the FEC-W, FEC-M and A7C-FEC-M Alternatives. Although the area is leased now to the State for park use, the lease allows for military training activity to occur in this area with prior notice to the Department of Parks and Recreation. In addition, it is possible that in the future when the lease expires, the land could revert to active military training area. As discussed in Section 4.21, these Alternatives would further limit the ability of MCB Camp Pendleton to make use of the area by providing a physical barrier on the northern part of base, in essence causing a reduction in the total training area or potential training area on the Base. This reduction in training area would also be considered a cumulative adverse impact on the Base because training area on the Base is already limited and continues to be further limited by regulations and residential development encroachment as discussed in detail in Sections 4.21 and 5.3.18.1.

The remaining build alternatives (A7C-ALPV, CC, CC-ALPV, AIO and I-5) and the No Action Alternatives do not propose any SOCTIIP improvements on the Base and would not extend onto or require acquisition of any property from Camp Pendleton. Therefore, these Alternatives would not contribute to a cumulative adverse impact related to land use.

In conclusion, there are cumulative land use impacts of the SOCTIIP build Alternatives. There are no cumulative land use impacts associated with the No Action Alternatives. Although as discussed earlier, the other cumulative projects (such as RMV) will have cumulative impacts. All of the SOCTIIP corridor Alternatives and the AIO contribute incrementally to the conversion of open space to urban land uses on RMV, but the impact is not adverse. The I-5 Alternative does not contribute to the conversion of open space. The CC, CC-ALPV, A7C-ALPV, AIO and I-5 Alternatives have adverse cumulative impacts on existing and planned housing. Finally, the FEC-W, FEC-M and A7C-FEC-M would have adverse cumulative impacts on MCB Camp Pendleton by contributing to encroachment impacts on the northern part of the Base.

5.3.3 CUMULATIVE IMPACTS RELATED TO FARMLAND

5.3.3.1 Overview

The study area for cumulative impacts to farmland is the same as that defined for land use and as shown on Figure 5.1-1. However, impacts to agricultural lands are also a regional concern and this analysis is also discussed in terms of regional impact in the context of trends as well as impact in the study area.

Agricultural resources have been lost throughout Orange County, including south County, and north San Diego County, as result of the conversion of agricultural land to urban and suburban uses. The depletion of agricultural resources throughout southern California is an adverse impact that, in most cases, cannot be fully mitigated. Although California provides incentives to retain farmlands for agricultural purposes under the Williamson Act, that policy does not guarantee the long term preservation of agricultural lands. The development trends discussed in Section 5.1.3 have resulted in the rapid decline of agricultural uses and conversion of land to urbanized uses.

As described in Section 4.3 (Affected Environment, Impacts and Mitigation Measure Related to Farmland), the County of Orange and MCB Camp Pendleton are the two agencies with land use authority over the agricultural resources in the SOCTIIP study area.

Some of the last remaining agricultural resources in Orange County are in the SOCTIIP study area. In addition, agricultural activities are conducted on several leased parcels on MCB Camp Pendleton. The loss of agricultural resources in these areas as a result of the SOCTIIP build Alternatives and other cumulative projects would be an adverse cumulative impact on those resources.

5.3.3.2 Cumulative Impacts on Agricultural Resources

The southern California basin has seen dramatic declines in land devoted to agriculture in recent decades. The strong economy and population growth will most likely continue or exacerbate this trend. Market forces such as competition from other agricultural areas and increased operations costs (e.g. water costs) continue the trend of declining agricultural land. Because the agencies governing landowners' abilities to convert these resources have no explicit policies or programs to guarantee protection of agricultural production or leases, all the SOCTIIP build Alternatives except the I-5 Alternative will contribute to cumulative adverse impacts on agricultural resources in southern California because these Alternatives all cross the RMV and would result in the permanent use of agricultural land for road purposes. However, the long term viability of agricultural resources in the study area or the region may be affected by growth pressure regardless of whether a SOCTIIP build Alternative is built. The No Action Alternatives and the I-5 Alternative do not propose improvements on RMV and would not contribute to cumulative adverse impacts related to agricultural resources.

The agricultural resources in the SOCTIIP study area that could be impacted by the SOCTIIP build Alternatives and other development in south Orange County have historically been successful in agricultural production. This is directly related to, among other factors, the quality of the soils of these areas. Agricultural soils are an irretrievable non-renewable resource, and conversion of these lands to non-agricultural uses would contribute to an increasing cumulative loss of this resource as a result of the SOCTIIP build Alternatives and other cumulative projects in the area.

The No Action Alternatives do not propose any SOCTIIP improvements and, therefore, there would be no loss of agricultural resources as a result of SOCTIIP improvements under the No Action Alternatives. The assumed MPAH and land use build out under the No Action Alternatives would result in the loss of agricultural uses in the SOCTIIP study area. However, there would be no SOCTIIP contribution to that cumulative adverse impact under the No Action Alternatives.

In conclusion all of the SOCTIIP build Alternatives except for the I-5 Alternative contribute to the conversion of agricultural lands and agricultural preserves to non-agricultural uses and therefore have cumulative adverse impacts to agricultural resources. The No Action Alternatives do not contribute to the cumulative loss or conversion of agricultural resources.

5.3.4 CUMULATIVE IMPACTS RELATED TO SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

As described earlier in Section 4.4 (Affected Environment, Impacts and Mitigation Measure Related to Socioeconomics and Environmental Justice), the SOCTIIP build Alternatives would result in adverse impacts related to socioeconomics during construction and operation. The socioeconomic impacts that would result from implementation of the other projects in the area are described in Table 5.3-2. "No Information Provided" indicates that the respective environmental document did not contain any information on this issue. Therefore, because it was not addressed in the environmental document that was prepared to evaluate the specific project, it was assumed there was no impact in the subject area. The study area is the same as for land use, as shown of Figure 5.1-1. This study area is appropriate for the analysis of socioeconomic and environmental justice impacts because it covers the area affected by the build Alternatives and other cumulative projects which could adversely affect the communities and residents in which these projects are located. Socioeconomic impacts include residential and non-residential displacements, community cohesion and economic impacts such as losses in sales tax revenues and changes in employment opportunities.

5.3.4.1 Residential and Non-Residential Displacements

The following SOCTIIP build Alternatives would displace residential and non-residential uses in the study area:

- FEC-M Alternative.
- FEC-W Alternative.
- CC Alternative.
- CC-ALPV Alternative.
- A7C-ALPV Alternative.
- A7C-FEC-M Alternative.
- AIO Alternative.
- I-5 Alternative.

For the projects listed in Table 5.3-2 for which environmental documentation has been prepared, none have identified the displacement of substantial numbers of residential or non-residential uses. Moreover, because the majority of these projects are proposed for vacant land, displacement of existing uses is not anticipated for these projects. Therefore, the SOCTIIP build Alternatives, when considered with these other projects, will not contribute to substantial cumulative adverse impacts related to residential and non-residential displacement in the study area.

While not directly identified in Table 5.3-2 it is anticipated that development of RMV will result in the displacement of active agricultural operations. Therefore, the above referenced SOCTIIP build Alternatives would cumulatively contribute to the displacement of agricultural operations in the study area.

However, the Ranch Plan allocates approximately 60 percent of the property to open space uses. Agricultural operations will be allowed in these areas. Thus, portions of the property will potentially be available to accommodate agricultural operations displaced by SOCTIIP build Alternatives, as well as potential agricultural displacements caused by development of Donna O'Neill Land Conservancy.

The No Action Alternatives would not result in any residential displacement because no property acquisition would occur under the No Action Alternatives. Therefore, the No Action Alternatives would not contribute to cumulative residential displacement.

5.3.4.2 Community Cohesion

The following SOCTIIP Alternatives would have an adverse impact on community cohesion because they will bisect existing communities and/or displace community facilities:

- CC Alternative.
- A7C-ALPV Alternative.
- I-5 Alternative.

Based on information provided in Table 5.3-2, none of the other cumulative projects for which environmental documentation has been prepared have identified adverse impacts to community cohesion. Moreover, because the majority of these projects are proposed for vacant land and are generally consistent with the adopted land use plans for these communities, disruption of community cohesion is unlikely as a result of these projects. Therefore, the SOCTIIP build Alternatives, when considered with these other projects, will not contribute to substantial cumulative adverse impacts related to community cohesion in the study area.

The No Action Alternatives would not result in any SOCTIIP contributions to impacts on community cohesion because no structure would be built and no properties would be acquired. Therefore, no cumulative impacts to community cohesion would result because the No Action Alternatives do not contribute impacts that affect community cohesion.

5.3.4.3 Economic Impacts

All the SOCTIIP build Alternatives result in adverse economic impacts in one or more of the following areas: property, sales or transit occupancy tax revenues; loss of employment opportunities; established business districts; and capacity and lifespan of Prima Deshecha Landfill. These impacts are discussed in detail in Section 4.4. For the project listed in Table 5.3-2 for which environmental documentation has been prepared, none have identified adverse economic impacts. Therefore, the SOCTIIP build Alternatives, when considered with these other projects, will not contribute to substantial cumulative adverse economic impacts in the study area.

The No Action Alternatives do not result in SOCTIIP contributions to any adverse cumulative economic impacts because there are no SOCTIIP improvements which result in any economic impacts under these Alternatives.

5.3.4.4 Environmental Justice

No SOCTIIP build or No Action Alternatives result in adverse environmental justice impacts. Specifically, these alternatives do not result in disproportionate adverse human health or environmental impacts on minority or low income populations in the SOCTIIP study area. For the projects listed in Table 5.3-2, for which environmental documentation has been prepared, no environmental justice impacts were identified. Therefore, the SOCTIIP build and No Action Alternatives, when considered with these other projects, will not contribute to substantial cumulative adverse environmental justice impacts in the study area.

5.3.5 CUMULATIVE IMPACTS RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

The study area for cumulative impacts to pedestrian and bicycle facilities is the same as that defined for land use and as shown on Figure 5.1-1. Three proposed regional trails would be crossed by some of the alignments of the SOCTIIP build Alternatives as discussed in Section 4.5. The proposed San Juan Creek Trail extension, Cristianitos Trail and the Prima Deshecha Trails are regional riding and hiking trails shown in the County of Orange Master Plan of Regional Riding and Hiking Trails and in the County of Orange General Plan. Because these trails are proposed and no specific alignments have been identified for these trails, it is not possible to identify site specific impacts of the SOCTIIP alignments on these trails. However, any permanent impacts which would divide a trail and create a barrier towards continuous travel on the trail would be an adverse impact. Because the trail system has been affected in the past by other uses which affect the continuity of the trail system, impacts of the SOCTIIP Alternatives without mitigation would be considered to contribute to a cumulative adverse impact on trail continuity in south Orange County. However, accommodation for trail crossings is included in the mitigation for the SOCTIIP build Alternatives which cross these proposed trails. Because the SOCTIIP build Alternatives will include provisions to accommodate the trails, they will not result in cumulative adverse impacts to pedestrian and bicycle facilities.

Depending on the design of projects associated with build out of the MPAH and the land uses assumed under the No Action Alternatives, there may be some adverse short and long term impacts related to disruption of existing and planned trails. These potential impacts would contribute to a cumulative adverse impact on pedestrian and bicycle facilities. However, the No Action Alternatives do not have any SOCTIIP related impacts to pedestrian and bicycle facilities because they do no involve any construction of SOCTIIP improvements that would impact these facilities. Therefore, the No Action Alternatives would not contribute to cumulative adverse impacts related to pedestrian and bicycle facilities.

5.3.6 CUMULATIVE IMPACTS RELATED TO NOISE

The FHWA criteria for noise impacts are based on the peak noise hour, that is, the maximum hourly noise level generated by the highway. The traffic conditions used to calculate the peak hour noise levels for this assessment result in the highest theoretical hourly noise levels that can occur along the road. The peak noise hour conditions occur when the road experiences the greatest number of cars at free flow conditions. If there are fewer cars at free flow, the noise

levels generated by the road will be lower. Adding more cars results in congestion and slower travel speeds than free flow. These lower travel speeds result in lower noise levels. Therefore, the noise impacts analysis is independent of how much traffic is actually projected for the road. Additional cumulative projects would either result in the actual noise levels approaching the conditions modeled for this assessment if the road is not congested (that is, the maximum number of cars at free flow conditions), or change the amount and/or time of congestion which does not affect quantification of the peak noise hour levels. Because other cumulative projects do not affect FHWA's definition of noise impacts as peak hour noise level, there are no cumulative impacts using the FHWA criteria.

The CEQA noise criteria are in terms of local municipalities' defined noise standards. The County of Orange and the cities in the SOCTIIP study area have established noise standards which are in terms of the Community Noise Equivalent Level (CNEL) measurement.

In terms of local municipalities' CNEL standards, the criteria for determining impacts are based on the noise level increase caused by a project in combination with the resulting absolute noise level. An impact occurs if a project results in a substantial noise increase and the when project noise level exceeds a local municipality's CNEL standards, as explained in detail below.

To cause a significant adverse impact, a project alternative must first cause a substantial increase in future CNEL levels at a sensitive receptor. A project alternative that causes a noise level increase of 3 dB or more is considered to result in a substantial noise increase. Changes less than one dB will not be noticeable to local residents. The increase in noise level caused by the project alternative is the difference in the future noise level with the project alternative and the future noise level without the project alternative. The increase in future noise levels with a project alternative, compared to existing conditions, is a result of both the project alternative and overall growth in the region. If the noise level increase over existing conditions is greater than 3 dB and the project alternative causes more than 1 dB of this increase, that project alternative is considered to result in a substantial combined noise increase. If either increase is realized, a second condition must occur for a significant adverse noise impact to result from the project alternative.

The second condition that must occur for an impact to be considered significant and adverse in terms of the local municipalities' CNEL standards is that the increase results in a future noise level which exceeds the local municipalities' CNEL standard. All the municipalities in south Orange County have established an exterior residential CNEL standard of 65 CNEL. The County does not have an applicable noise standard relating to parks. However, all the Cities in the study area have established a 65 CNEL noise standard for parks. In some Cities, the park standard is only applicable at picnic areas and in others it is applicable at picnic areas, playgrounds and areas of frequent human activity. For this analysis, the broader scope of the standard was assumed and noise levels were evaluated at potentially impacted park picnic areas, playgrounds and areas of frequent human activity.

Analysis of impacts in terms of local municipalities' CNEL standards is applicable to areas along new roads constructed by the SOCTIIP Alternatives and along existing roads that would be modified by the SOCTIIP Alternatives (i.e. addition of lanes). It is also applicable to roads that

would not be physically modified by the SOCTIIP Alternatives but on which traffic volumes would change as a result of the SOCTIIP Alternatives.

Cumulative noise impacts under CEQA for the proposed SOCTIIP are analyzed with the traffic scenarios that assume build out of the MPAH and other reasonably foreseeable projects. This includes three traffic scenarios, with RMV developed with 14,000 dus, RMV developed with 21,000 dus and RMV developed with 21,000 dus and all of the toll roads in Orange County operating toll-free (the first two scenarios assume the toll roads operating under existing with tolls conditions). The cumulative impacts for noise parallels the methods and assumptions for the traffic analysis and is based on full build out in accordance with adopted forecasts and projections. The traffic analysis in Section 3.0 includes reasonable foreseeable projects. The noise analysis incorporates traffic generated from the foreseeable projects and projected land use changes. Consequently, the cumulative analysis for the mainline of the SOCTIIP Alternative is included in the long-term impact analysis discussed in Section 4.6.3.

To address cumulative impacts for noise along the transportation network that is not physically altered by the SOCTIIP build Alternatives, it is possible to separate the noise contribution from the SOCTIIP Alternative and the No Action Alternative and existing conditions. This analysis includes development of recent past, present and future development as described in Section 5.1.3 and listed in Table 5.1-1.This information is presented below. To assess cumulative noise impacts along roads not physically altered by the SOCTIIP build Alternatives, analysis was prepared for each traffic scenario. The analysis of cumulative noise impacts along the alignments of the SOCTIIP build Alternatives is for the worst case scenario. Therefore, this analysis represents both cumulative and project specific impacts.

The study area for cumulative noise impacts is the same as the traffic study area as defined in Section 5.3.1 (Cumulative Impacts Related to Traffic and Circulation).

5.3.6.1 Cumulative Noise Impacts by Alternative

FEC-M Alternative

Traffic Scenario Assuming MPAH Build Out and 14,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the FEC-M Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV. This condition occurs along nine segments. Noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with the FEC-M Alternative. Therefore, the FEC-M Alternative would not result in significant adverse noise impacts along these segments under CEQA.

The analysis shows that there will be substantial cumulative noise increases along four segments. However, the FEC-M Alternative does not contribute considerably to these increases. The increases due to this alternative would not result in the 65 CNEL standard to be exceeded at

these residences. Further, the FEC-M Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the FEC-M Alternative will not result in any significant cumulative adverse noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out and 21,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the FEC-M Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV. This condition occurs along six segments. Noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the FEC Alternative would not result in cumulative adverse noise impacts along these segments.

The analysis shows that there will be substantial cumulative noise increases along one segment. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the FEC-M Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the FEC Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assume MPAH build out and 21,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out, 21,000 dus at RMV and Toll Free Operation for All Toll Roads

Road segments were analyzed that are not physically altered by the project where the FEC-M Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV and toll-free conditions, with the existing tolls roads and the FEC-M Alternative operating toll free. This condition occurs along ten segments. There are substantial cumulative noise increases where this Alternative contribute considerably along four of these segments. Detailed analysis of future noise levels along these road segments with the FEC-M Alternative was performed. The analysis found that the noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the FEC Alternative would not result in adverse noise impacts along these segments.

The analysis shows that there will be substantial cumulative noise increases along four segments. However, this Alternative does not considerably contribute to these increases. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the FEC Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

Because this Alternative considerably contributes to the increase along one segment (Pico east of Hermosa), detailed analysis of the future noise levels along this segment was performed. This analysis found that at a stretch of the residences along this segment future noise levels would exceed 65 CNEL with the FEC-M Alternative. The 65 CNEL noise level would not be exceeded at these select residences without this Alternative and with 14,000 dus at RMV, but with 21,000 dus, the noise level would exceed 65 CNEL at these residences. However, the FEC Alternative does not perceptibly increase the noise levels at these residences and, therefore, does not result in a significant adverse noise impact under CEQA.

In summary, the FEC-M Alternative will not result in significant cumulative adverse noise impacts along roads not physically altered by this Alternative for the traffic scenario which assume MPAH build out and 21,000 dus at RMV under toll free conditions.

FEC-W Alternative

As documented in the traffic study, the traffic volumes on the roadway network under the FEC-W Alternative would be the same as under the FEC-M-Initial and Ultimate Alternatives. Therefore, the analysis of noise impacts along roadways not physically altered by the project for the FEC-M Alternative, as described previously, also applies to the FEC-W Alternative. That analysis shows that the FEC-W Alternative would not result in any significant cumulative noise impacts along roadways not physically altered by this Alternative.

CC Alternative

Traffic Scenario Assuming MPAH Build Out and 14,000 dus RMV

Road segments were analyzed that are not physically altered by the project where the CC Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assume MPAH build out and 14,000 dus at RMV. This condition occurs along eight segments. The analysis shows that the noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the CC Alternative would not result in significant adverse noise impacts along these road segments under CEQA.

The analysis also shows that there will be substantial cumulative noise increases along four segments. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the CC Alternative do not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

Because this Alternative considerably contribute to the increase along one segment east of Hermosa), detailed analysis of the future noise levels along this segment was performed. However, the CC Alternative does not perceptibly increase the noise levels at these select residences and, therefore, do not result in a significant adverse noise impact.

In summary, the CC Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out and 21,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the CC Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV. This condition occurs along seven segments. The analysis found that the noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the CC Alternative would not result in adverse noise impacts along these segments.

The analysis shows that there will be substantial cumulative noise increases along two segments. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the CC Alternative do not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

Because this Alternative considerably contributes to the increase along one segment, detailed analysis of the future noise levels along this segment was performed. However, the CC Alternative does not perceptibly increase the noise levels at these residences and, therefore, does not result in a significant adverse noise impact under CEQA.

In summary, the CC Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out and 21,000 dus at RMV and Toll Free Operation for All Toll Roads

Road segments were analyzed that are not physically altered by the project where the CC Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV under toll-free conditions, with all the existing toll-roads and this Alternative operating toll free. This condition occurs along nine segments. This analysis accounted for the location of existing noise sensitive land uses relative to the roads, existing noise barriers and topography. The analysis found that the noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the CC Alternative would not result in adverse noise impacts along these segments.

The analysis shows that there will be substantial cumulative noise increases along two segments. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the CC Alternative do not increase noise levels enough to

cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

Because this Alternative considerably contributes to the increase along one segment (Pico east of Hermosa), detailed analysis of the future noise levels along this segment was performed. However, the CC Alternative does not perceptibly increase the noise levels at these residences and, therefore, does not result in an adverse noise impact.

In summary, the CC Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 21,000 dus on RMV under toll free conditions.

CC-ALPV Alternative

Traffic Scenario Assuming MPAH Build Out and 14,000 dus at RMV

The roadway segments not physically altered by the project where the CC-ALPV Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH buildout and 14,000 dus at RMV were evaluated. This condition occurs along twelve segments. There are substantial cumulative noise increases where this Alternative contribute considerably along four of these segments. The analysis found that the noise levels at the existing noise sensitive receptors willwould not exceed 65 CNEL with this Alternative. Therefore, the CC-ALPV Alternative would not result in significant noise impacts along these segments.

The analysis shows that there would be substantial cumulative noise increases along five segments. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the CC-ALPV Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

Because this Alternative considerably contributes to the increase along segment (Pico east of Hermosa), detailed analysis of the future noise levels along this segment was performed. However, the CC-ALPV Alternative does not perceptibly increase the noise levels at these residences and, therefore, does not result in a significant noise impact.

In summary, the CC-ALPV Alternative would not result in any significant cumulative noise impacts along roadways not physically altered by this Alternative for the traffic scenario which assumes MPAH buildout and 14,000 dus at RMV.

A7C-ALPV Alternative

As documented in the traffic study, the traffic volumes on the roadway network under the A7C-ALPV Alternative would be the same as the volumes under the CC-ALPV Alternative. Therefore, the analysis of impacts along roadways not physically altered by the project also

applies to the A7C-ALPV Alternative. That analysis shows that the A7C-ALPV Alternative would not result in any significant cumulative noise impacts along roadways not physically altered by this Alternative.

A7C-FEC-M Alternative

Traffic Scenario Assuming MPAH Build Out and 14,000 dus at RMV

The A7C-FEC-M Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV. This occurs along eight segments. The analysis found that the noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the A7C-FEC-M Alternative would not result in adverse noise impacts along these segments.

The analysis shows that there will be substantial cumulative noise increases along three segments (with existing nearby noise sensitive land uses. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the A7C-FEC-M Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the A7C-FEC Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out and 21,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the A7C-FEC-M Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV. This condition occurs along six segments. The analysis found that the noise levels at the existing noise sensitive receptors will not exceed 65 CNEL with this Alternative. Therefore, the A7C-FEC-M Alternative would not result in adverse noise impacts along these segments.

The analysis shows that there will be substantial cumulative noise increases along two segments (with existing nearby noise sensitive land uses. It is unlikely that the increases due to this alternative would result in the 65 CNEL standard to be exceeded at these residences. Further, the A7C-FEC-M Alternative do not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the A7C-FEC-M Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV.

AIO Alternative

Traffic Scenario Assuming MPAH Build Out and 14,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the AIO Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV. This condition occurs along three segments.

The analysis shows that there will be substantial cumulative noise increases along two segments (with existing nearby noise sensitive land uses. Because the AIO Alternative considerably contributes to the increase along these two segments, detailed analysis of the future noise levels along these segments was performed. This analysis found that future noise levels would not exceed 65 CNEL at any residences along these segments with the AIO Alternative. Further, the AIO Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the AIO Alternative will not result in significant adverse cumulative noise impacts under CEQA along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out and 21,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the AIO Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV. This condition occurs along five segments. There are no substantial cumulative noise increases to which the AIO Alternative contributes considerably.

The analysis shows that there will be substantial cumulative noise increases along two segments. Because the AIO Alternative considerably contributes to the increase along these two segments, a detailed analysis of the future noise levels along these segments was performed. This analysis found that future noise levels would not exceed 65 CNEL at any residences along these segments with the AIO Alternative. Further, the AIO Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the AIO Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by the project for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV.

I-5 Alternative

Traffic Scenario Assuming MPAH Build Out and 14,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the I-5 Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV. This condition occurs along four segments. There are no substantial cumulative noise increases where the I-5 Alternative contributes considerably.

The analysis shows that there will be substantial cumulative noise increases along four segments. Because the I-5 Alternative considerably contributes to the increase along one segment, detailed analysis of the future noise levels was performed for noise sensitive uses along this segment. This analysis found that future noise levels would not exceed 65 CNEL at any residences along this segment with the I-5 Alternative. Along some segments, some residences may experience future noise levels in excess of 65 CNEL with the I-5 Alternative. However, the I-5 Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the I-5 Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by this Alternative for the traffic scenario which assumes MPAH build out and 14,000 dus at RMV.

Traffic Scenario Assuming MPAH Build Out and 21,000 dus at RMV

Road segments were analyzed that are not physically altered by the project where the I-5 Alternative would result in a 1 dB increase over no project conditions or a 3 dB increase over existing conditions and any increase over no project conditions for the traffic scenario which assumes MPAH build out and 21,000 dus at RMV. This condition occurs along seven segments listed below. There are no substantial cumulative noise increases where the I-5 Alternative contributes considerably.

The analysis shows that there will be substantial cumulative noise increases along seven segments. Because the I-5 Alternative considerably contributes to the increase along one segment detailed analysis of the future noise levels was performed for noise sensitive uses along this segment. This analysis found that future noise levels would not exceed 65 CNEL at any residences along this segment with the I-5 Alternative. Some residences may experience future noise levels in excess of 65 CNEL with the I-5 Alternative. However, the I-5 Alternative does not increase noise levels enough to cause the noise levels to noticeably exceed the noise level that would occur without this Alternative.

In summary, the I-5 Alternative will not result in significant adverse cumulative noise impacts along roads not physically altered by the project for the traffic scenario which assumes MPAH build out and 21,000 dus RMV.

Conclusion

None of the SOCTIIP build alternatives would contribute to cumulatively adverse noise impacts under any of the development assumptions examined (i.e. 14,000 and 21,000 dus with or without tolls). The No Action Alternatives do not contribute cumulatively to the noise environment in the SOCTIIP study area. The other development associated with the buildout of the MPAH would contribute to the cumulative noise environment, but would be required to mitigate those noise impacts if they resulted in the exceedance of adopted noise standards. Notwithstanding the fact that the SOCTIIP build Alternatives will not contribute to cumulative impacts based on defined standards, perceptibility of noise increase or exceeding the 65 dB CNEL standard, the noise environment in the study area will change, in some cases substantially, due to the presence of more noise sources i.e. development associated with the cumulative projects shown on Table 5.1-1. The primary noise source is traffic on new roadways including the SOCTIIP build Alternatives.

5.3.7 CUMULATIVE IMPACTS RELATED TO AIR QUALITY

As discussed in Section 4.7 (Affected Environment, Impacts and Mitigation Measures Related to Air Quality), air quality impacts, which are derived from the traffic impacts assessment, were evaluated under a range of assumptions related to traffic and circulation. Air quality, like traffic, is an environmental parameter for which the impact analysis is inherently cumulative because air quality impacts are based on build out consistent with adopted demographic forecasts and projections. This is also consistent with the development trends discussed in Section 5.1.3 and shown on Table 5.1-1. The study area included most of the South Coast Air Basin (SCAB) and segments in the northern San Diego County which are in the northern reaches of the San Diego Air Basin. These segments of San Diego County share similar meteorological conditions with the adjacent Orange County areas. Refer to the analysis in Section 4.7 which includes the cumulative air quality impact of the SOCTIIP Alternatives and other land use assumptions.

In summary, all alternatives, except the No Action Alternatives, will result in an increase of emissions during construction. This increase in emissions is projected to be substantial for all pollutants.

The potential long term air quality impacts of the SOCTIIP build Alternatives have been evaluated with respect to various roadway networks and Rancho Mission Viejo (RMV) development levels. The regional/subregional analysis focused on the committed roadway network with RMV developed at 14,000 dwelling units. Cumulative impacts are a concern with the further development of the roadway network to the full MPAH/RTP and the expanded development of RMV to 21,000 dwelling units. Analyses of these scenarios with RMV at 21,000 dwellings and the buildout of the MPAH/RTP have been presented previously in this report (refer to Section 4.7 in the EIS/SEIR), however, the results are presented again to highlight the cumulative nature of the buildout of the roadway network (MPAH/RTP) and the highest potential for development of RMV.

Alternatives with a substantial decrease in hydrocarbons include the FEC-W, FEC-M, CC and the A7C-FEC-M. Additionally, all toll-free scenarios that were assessed showed a substantial

decrease in HC emissions. Decreases are also shown for CO to varying degrees for all the build Alternatives. The toll free conditions result in the largest CO emission decreases.

All the SOCTIIP build Alternatives have increases in NOx emissions above the SCAQMD criteria and these increases are considered to be cumulatively adverse. The AIO Alternative has the lowest increase in NOx emissions. The I-5 Widening Alternative will generate the most Nox emissions of the non-toll free conditions. The toll free conditions result in the highest increases in NOx emissions, and these increases would be considered cumulatively adverse.

5.3.8 CUMULATIVE IMPACTS RELATED TO WATER RESOURCES (FLOODPLAINS, WATERWAYS AND HYDROLOGIC SYSTEMS, AND WATER QUALITY)

Over the past 50 to 100 years, Orange County has undergone a dramatic change in the landscape. The smaller cities, towns, agricultural communities and ranching interests that once dominated the landscape have been substantially converted to suburban communities and public infrastructure. This development trend is discussed in Section 5.1.3 and shown in Table 5.1-1. With this land conversion and transformation, there has been a substantial loss of native plant communities, wildlife habitat, natural streambeds and surface water features. The conversion has taken place in South County, most substantially since the 1970s, and has resulted in less open space, fewer opportunities for wildlife forage and breeding and replacement of softscape/naturalized floodplains to storm drain systems and flood control conveyance facilities. The cumulative transformation that has occurred has put pressures on the County's natural and water resources that comprise the remaining watersheds. Consequently, existing projects and future projects that contribute to the transformation represent a more profound impact on remaining resources as a result.

Build out of the study area, based on adopted forecasts and General Plan build out was used for the assessment of cumulative water resources impacts in the parts of Orange, Riverside and San Diego Counties. For water resources, the SOCTIIP study area extends throughout six regional watersheds. These watersheds include Aliso Creek, San Juan Creek, Prima Deshecha Cañada, Segunda Deshecha Cañada, San Mateo Creek and San Onofre Creek. This total watershed area is nearby 1,036 sq km (400 sq mi). This includes the projects listed in Table 5.1-1 which provides a summary of major cumulative projects in the SOCTIIP study area regional watersheds. The cumulative analysis was conducted as part of the future with-project analysis. Two different future conditions scenarios were analyzed with respect to RMV: a 14,000 dus scenario and a 21,000 dus scenario. The study area for cumulative water resources impacts is the area covered by the watersheds in south Orange County as shown earlier in Figure 4.8-1. The development projects listed in Tables 5.1-1 to 5.1-5 are the primary development projects in these watersheds and were used to develop the future condition for the watersheds in the water resources analyses.

If unmitigated, cumulative build out of the County as projected will have a cumulative adverse impact on the hydrologic, water quality, erosion/sedimentation potential and groundwater resources in the watersheds in the cumulative projects study area. At the regional and local levels, these impacts may include increase in discharge, runoff volume, runoff velocity; erosion

and sedimentation; water quality degradation; and impacts on groundwater levels and quality. For example, at specific crossings such as San Juan Creek, the CC, CC-ALPV and AIO Alternatives could exacerbate long term erosion and deposition if sand and gravel mining operations resume. However, it is anticipated that all future projects in these watersheds will need to comply with a similar (or in some instances more stringent) set of hydrology and water quality guidelines and regulations as the SOCTIIP Alternatives and, therefore, will need to provide adequate mitigation measures to avoid or reduce these impacts. Table 5.3-3 provides a brief summary of these projects and recommended mitigation measures for the projects, as they relate to water resources.

5.3.8.1 Discharge

Tables 4.8-1 through 4.8-29 provide a summary of local and regional drainage areas analyses results for the watersheds in the SOCTIIP study area. Runoff from the SOCTIIP build Alternatives will be isolated from local runoff and will be collected and treated in detention basins prior to release to other watercourses. With two exceptions, the hydrologic analysis points had only minor increases in discharge for the future condition. Cañada Gobernadora, which has a tributary of about 22 sq km (8.5 sq mi), had a moderate increase in drainage due to future conditions and Segunda Deshecha Cañada characterized by relatively small tributary areas (6 to 7 sq km (2.3 to 2.7 sq mi)), is projected to experience major discharge increases as a result of the cumulative projects, including the SOCTIIP build Alternatives and the No Action Alternatives.

5.3.8.2 Floodplains

Based on the hydrologic data for future watershed conditions, impacts to floodplains were evaluated at selected hydrologic analysis points to determine cumulative effects of the SOCTIIP. Analysis points which underwent an increase in discharge of greater than 10% had additional water surface elevation increases up to 0.8 m (3 ft). The analysis point at Cañada Gobernadora that resulted in a discharge increase between 5 and 10% had an impact of approximately 0.03 m (0.1 ft). The remainder of the points, which had increases of less than 5%, had water surface elevation impacts of less than 0.03 m (0.1 ft). As a result of these findings, it is anticipated that the SOCTIIP Alternatives, in combination with future development, could potentially cause substantial cumulative impacts if unmitigated imperviousness due to future development in watersheds increases more than 10%. However, if increased runoff due to future development is either mitigated (as required by the Regional Water Quality Control Board), or if increases in imperviousness are held below the 5% threshold, cumulative impacts to floodplains are less than adverse. The addition of impervious surfaces, due to the SOCTIIP Alternatives were determined to be generally less than two or three percent. Although this is not a substantial change, it must be acknowledged that this is a cumulative change over existing conditions because so much of the area is undeveloped. No substantial adverse cumulative impacts would occur under the SOCTIIP build Alternatives for floodplains.

5.3.8.3 Hydrology/Water Quality

Following are the conclusions from the RMP (Psomas 2003):

> "If unmitigated, the cumulative projects listed in Table 5.1-1 may have a significant adverse impact on the hydrologic, water quality, erosion/sedimentation potential, and groundwater resources of the SOCTIIP project alternatives watersheds. At a regional and local level, these impacts may include increase in discharges, runoff volumes, runoff velocities; erosion and sedimentation increases; water quality degradation; and impacts on groundwater levels and quality. However, it is anticipated that all future projects in these watersheds will need to comply with a similar (or in some instances more stringent) set of water quality guidelines and regulations as the SOCTIIP project alternatives and therefore, will need to provide adequate mitigation measures to completely negate these impacts."

Groundwater recharge will not be substantially impacted by the SOCTIIP Alternatives due to the very small percentage of impervious surface in a given watershed as well as the way runoff is treated. All off site runoff is returned to the environment and all on site runoff is detained and treated in the extended detention basin, and then is returned to the environment, generally within the same location.

No substantial adverse cumulative impacts would occur under any of the SOCTIIP build Alternatives in the areas of floodplains, hydrology, water quality and ground water. However, with regard to discharges, Cañada Gobernadora, which has a tributary of about 22 sq km (8.5 sq mi), had a moderate increase in drainage due to future conditions and Segunda Deshecha Cañada, characterized by relatively small tributary areas (6 to 7 sq km (2.3 to 2.7 sq mi)), is projected to experience major discharge increases as a result of the cumulative projects, including the SOCTIIP build Alternatives. However, these increases are mitigated through design measures for the SOCTIIP build Alternatives. It is anticipated that all future projects in these watersheds will need to comply with a similar (or in some instances more stringent) set of water quality guidelines and regulations as the SOCTIIP Alternatives and, therefore, will provide adequate mitigation measures to avoid or reduce these impacts.

5.3.9 CUMULATIVE IMPACTS RELATED TO BIOLOGICAL RESOURCES (WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES)

5.3.9.1 Context of Cumulative Impact Assessment

Parts of south Orange County contain some of the last substantial remaining unplanned areas in the County as development has progressed inland and east from the coast. In contrast with other parts of the County, where land use decisions have been made regarding the locations of development and open space, the RMV land in south Orange County is in the midst of a decision making process that is anticipated to result in the designation of areas for development and open space for the remaining currently undeveloped and unplanned areas in this part of the County.

Over the past 50 to 100 years, Orange County has undergone a dramatic change in the landscape. The smaller cities, towns, agricultural communities and ranching interests that once dominated the landscape have been substantially converted to suburban communities and public infrastructure. With the conversion and transformation has been a substantial loss of native plant communities, wildlife habitat, natural streambeds and quality surface water features. The conversion has taken place in south County most significantly since the 1970s and has resulted in less open space, fewer opportunities for wildlife forage and breeding, and replacement of softscape/naturalized floodplains to storm drain systems and flood control conveyance facilities. The cumulative transformation that has occurred has put pressures on the County's natural and water resources that comprise the remaining watersheds. Consequently, existing projects and future projects that contribute to the transformation represent a more profound impact on remaining resources.

Orange County retains approximately 41,715 hectares (ha) (103,000 acres (ac)) of open space. Some of this open space has been disturbed, from a biological perspective, to support agriculture or to provide recreation uses. Residential development comprises almost 59,555 ha (147,000 ac), commercial development occupies 10,125 ha (25,000 ac), and industrial development has converted 7,695 ha (19,000 ac) (Source: http://www.orangecounty.net/pdf/facts.pdf-svvrddrf 11/03). As a result of this development and disturbance, severe habitat fragmentation has occurred, species have been listed for protection under various state and federal laws, and the functions and values of wetland communities have been limited by channelization or restriction.

The context of cumulative impacts on endangered and threatened species of plants and animals is summarized in Table 5.3-4. Table 5.3-4 provides information on species that have been observed, or for which critical habitat has been designated, in the study area. The fact that these species require state and/or federal protection indicates that their historic ranges and populations generally have been severely depleted.

5.3.9.2 Methodology of Cumulative Impact Assessment

The cumulative impact analysis examines the impacts of past, present and reasonably foreseeable future actions within the study area. The study area includes all undeveloped lands and planned communities within the Southern Orange County Subregion, as designated by the ongoing South Orange County Coordinated Planning Process (SOCCPP) under the NCCP Act, the General Plans and OCP-2000. From a biological perspective, this geographic area was considered appropriate because (1) this area encompasses the SOCTIIP alternatives, (2) southern Orange County is identified by the California Department of Fish and Game (CDFG) as a separate biological subregion under the Natural Community Conservation Planning Program, and (3) it includes those projects that, along with the SOCTIIP build alternatives, could result in or contribute to cumulative adverse impacts. Although the study area includes primarily southern Orange County, it is important to recognize that northern San Diego County is also encompassed within the SOCTIIP study area. All alternatives have been evaluated with northern San Diego resources considered in the impact analysis.

Table 5.3-5 lists the projects considered to be reasonably foreseeable within the study area. Table 5.3-5 also summarizes the impacts on biological resources, and mitigation measures as

reported in draft and final environmental documents and best available information for these impacts.

RMV is included in these tables, although the planning and environmental review processes for the project have not been completed. The RMV planning process will involve a number of regulatory resource agencies, including the United States Army Corps of Engineers (ACOE), United States Fish and Wildlife Services (USFWS), CDFG, and the California Coastal Commission (CCC). Various development plan alternatives and preserve concepts are being considered as part of the Southern Subregion (Orange County) Natural Community Conservation Planning/Habitat Conservation Plan (NCCP/HCP) South Subregion (Orange County) process. The NCCP process includes USFWS and CDFG as the agencies responsible for administering endangered species regulations. The County of Orange has an important role as lead agency under CEQA, as well as RMV (the majority landowner). A Special Area Management Plan (SAMP) is also being prepared to integrate the wetlands planning concurrently with endangered species issues.

RMV is the largest landholding in the study area, encompassing approximately 9,308 ha (23,000 ac). The future development of this property will ultimately determine the size and design of the reserve system proposed for the Southern Orange County Subregion under the SOCCPP. While eight reserve alternatives have been proposed, several alternatives have been considered and rejected from further consideration by the SOCPP. Information on the Alternatives is taken from the "Alternatives Selection Rationale" (5-14-03) on the SOCCP website. It was "...determined that four of the eight alternatives combine to represent a reasonable range of alternatives as defined by NEPA and CEQA and should receive continuing evaluation as CEQA and NEPA alternatives. These alternatives are B-4, B-5, B-6 and B-8. These alternatives may be revised or modified as a result of ongoing evaluations and public input. These four alternatives are diverse enough to represent a reasonable range of alternatives in terms of the size, location and configuration of proposed reserve designs and allowable future development. These alternatives have yet to be evaluated for economic and environmental feasibility. Such analyses will occur in the EIS/EIR phase of the program." (Alternatives Selection Rationale.) Of the mapped reserve alternatives under consideration by the SOCPP, two are discussed in detail in this analysis: Reserve Alternatives B-4 and B-8. Reserve Alternative B-4 is analyzed because it represents RMV's preferred alternative. Reserve Alternative B-8 is analyzed because it provides for a larger reserve. Alternatives B-5 and B-6 provide different configurations and limits on the location of development. Therefore, Alternatives B-4 and B-8 encompass the spectrum of land area developed and preserved by the alternatives. These Alternatives, and their impacts on biological resources, are discussed in Section 5.3.9.3, below.

Alternatives B-5, B-6 and B-8 "...may require either a voluntary sale by RMV or condemnation of RMV and other lands (e.g., power lines) for open space acquisition." The Resource Agency "...policy is to pursue acquisition from willing sellers." Alternative B-4 "represents the only alternative that would not require significant acquisition of RMV lands by local/state/federal agencies for purposes of assembling a habitat reserve system." (Alternatives Selection Rationale.)

This analysis of cumulative effects relies substantially on field data gathered during survey efforts for the SOCTIIP alignments and information published by the SOCPP, as well as historical data obtained from state and federal resource agencies. Although population totals of the sensitive species in the study area are not known at this time, a general discussion of landscape level and potential habitat cumulative effects is provided, based on the proposed reserve alternatives and the magnitude of habitat community impact anticipated from the SOCTIIP alignments.

5.3.9.3 The Effects of Reserve Design on Cumulative Impacts on Biological Resources

As described earlier, the County of Orange is in the process of preparing an NCCP/HCP for the Southern Subregion. These plans are intended to ensure the long term survival of the coastal California gnatcatcher and other special status coastal sage scrub-dependent plant and wildlife species in accordance with sanctioned NCCP program guidelines. The reserve design will attempt to preserve the most biologically-rich areas within the subregion, while identifying those areas suitable for development.

Reserve Alternative B-4

This Alternative would result in approximately 3,642 ha (9,000 ac) of new development on the RMV and would impact the largest land area of any of the Reserve Alternatives under consideration. It would leave 5,666 ha (14,000 ac) of RMV land in open space, resulting in a total of 16,984 ha (41,967 ac) of total open space in the Southern Subregion NCCP/HCP. Figure 5.3-1 shows the tentative RMV planning areas for this alternative. Table 5.3-6 presents the conservation of biological resources in the Southern Subregion NCCP/HCP for the various RMV Reserve Alternatives, including B-4 and B-8. Table 5.3-7 presents the impacts that the SOCTIIP build Alternatives would have on the resources in the RMV area. These numbers were calculated by dividing the impacts associated with the ultimate alternatives by the total estimated acreages in the RMV study area. This calculation provides a comparison of the impacts of the SOCTIIP Alternatives compared to the amount of those resources in the vicinity. It is important to recognize that the ultimate build out time frame is after 2025 and is used to show potential total cumulative impacts. These impacts would, in some cases, be additive with those of the RMV development which is presented in Table 5.3-6.

Of the SOCTIIP Alternatives, the FEC-M, FEC-W and A7C-FEC-M Alternatives would result in the greatest habitat fragmentation of this reserve. These alignments would further constrain Canada Gobernadora and Cristianitos Canyon, which would both be closely flanked by proposed RMV development. The South Subregion NCCP/HCP has not been released for public review; therefore, the Habitat Reserve design and the Adaptive Management Program are not available to assess habitat connectivity in the context of that information. Therefore, while it is assumed that connectivity will be addressed and to some degree accommodated to meet NCCP/HCP goals, as discussed further below, the exact manner in which this impact on habitat connectivity would be mitigated cannot be determined at this time. It seems reasonable to expect, however, that this level of build out would increase the dependence of larger and more mobile wildlife on undercrossings and bridges in the area, and more dramatically impact local habitat continuity for a range of both common and sensitive smaller vertebrates. It is also likely that indirect impacts

(e.g., human disturbance, increased predation and disturbance from pets, lighting and noise) to these remaining wildlife corridors would be chronic and would likely seriously degrade the habitat value along the periphery of the development areas. These impacts are expected to be reduced by the South Subregion NCCP/HCP. The following text is excerpted from the Draft NCCP/HCP Planning Guidelines to summarize the goals and planning elements that will offset habitat connectivity and indirect impacts.

The goal of the NCCP/HCP is to fashion a habitat conservation planning and implementation program that addresses coastal sage scrub and other natural habitats on an ecosystems basis at a subregional level, pursuant to the State of California NCCP coastal sage scrub program and within the framework of the 1993 NCCP Conservation Guidelines. According to the NCCP Conservation Guidelines:

> *. . . subregional NCCPs will designate a system of interconnected reserves designed to: 1) promote biodiversity, 2) provide for high likelihoods for persistence of target species in the subregion, and 3) provide for no net loss of habitat value from the present, taking into account management and enhancement. No net loss of habitat value means no net reduction in the ability of the subregion to maintain viable populations of target species over the long-term.*

In other NCCPs, four planning elements comprise the "Conservation Strategy" and have been formulated as programmatic vehicles for carrying out the NCCP Tenets of reserve design:

- *Creation of a Reserve*: the assemblage of large scale Habitat Reserves capable of protecting and maintaining populations of "target species" over the long term.

- *Assurance of Connectivity*: the provision of land areas necessary for the dispersal of target species and the ability to maintain genetic flow within and between areas.

- *Adaptive Management*: the creation of an institutional basis and program for undertaking management actions necessary to sustain populations over the long tern, and in doing so, to adapt management actions to new information and changing habitat needs.

- *Implementation Agreement and Funding*: the formulation of a binding Implementation Agreement that identifies the rights and obligations of all signatory parties to the approved NCCP/HCP and provides for funding mechanisms adequate to assure the implementation of the NCCP/HCP consistent with FESA, CESA and the NCCP Act.

The combination of a properly formulated Habitat Reserve and a comprehensive Adaptive Management Program will allow the NCCP/HCP program to maintain *net habitat value* on a *long-term basis* for species ultimately receiving regulatory coverage under the program. As broadly defined in the 1993 NCCP Conservation Guidelines, "no net loss of habitat value means

no net reduction in the ability of the subregion to maintain viable populations of target species over the long-term." (Conservation Guidelines, page 9.) Specifically defined, *net habitat value* takes into account habitat gains and losses due to a particular activity, such as reductions in habitat area (impact) and increases in habitat quality (mitigation through restoration and management). The Habitat Reserve and Adaptive Management Program will allow for the mitigation of impacts of proposed incidental take such that the *net habitat value* of the subregion for Identified Species will be maintained on a long-term basis. (Draft NCCP/HCP Planning Guidelines, Southern Subregion, Orange County, California, April 2003, page 3-1, 3-2).)

Ultimately, it is anticipated that the biodiversity in the remaining open space habitat fragments on and adjacent to RMV would be addressed based on the NCCP/HCP. However, in the absence of an NCCP/HCP or similar regional planning effort that provides the same long-term net habitat value, biodiversity may decline incrementally over time due to a variety of edge effects, such as the introduction/promotion of non-native species and people/pet encroachment.

The combined effects of this RMV proposal with the biological impacts from any of the SOCTIIP corridor alternatives and the AIO Alternative, would likely result in cumulative adverse impacts in the absence of an NCCP/HCP or similar regional planning effort that provides the same long-term net habitat value. While it is anticipated that the NCCP/HCP will be adopted and implemented in the future, it is acknowledged that the South Subregion NCCP/HCP is not in place at this time. The impacts in the absence of the NCCP/HCP would be greater under the FEC-M, FEC-W and A7C-FEC-M Alternatives, as these would traverse the greatest amount of relatively undisturbed open space.

Reserve Alternative B-8

This Alternative would result in approximately 1,489 ha (3,680 ac) of new development on RMV, leaving 7,757 ha (19,168 ac) of undeveloped area. This would result in 19,000 ha (46,938 ac) of open space in the subregion, or 52 percent of the subregion, including regional parks, nonprofit lands and conservation easement open space already set aside. This does not include 16,190 ha (40,000 ac) of open space in Cleveland National Forest. Figure 5.3-2 shows Reserve Alternative B-8.

Potential development includes:

- 218.5 ha (540 ac) on both sides of Ortega Highway adjacent to San Juan Capistrano.
- 482 ha (1,191 ac) on and adjacent to the existing silica mining site (Trampas Canyon subbasin).
- 789 ha (1,949 ac) in and around the existing nursery and ranching facilities immediately inside the Canada Gobernadora subbasin north of San Juan Creek.
- 113 ha (280 ac) of development potential in the subregion outside of the Foothill Trabuco Specific Plan Area and RMV property.

Of the SOCTIIP alternatives, the FEC-M, FEC-W and A7C-FEC-M Alternatives would result in the greatest habitat fragmentation of this reserve. In the absence of the adaptive management of the NCCP/HCP or similar regional planning effort, development according to this Reserve

Alternative would contribute to direct habitat loss as well as a variety of indirect impacts (fragmentation, noise, human intrusions, pets, lighting, and non-native plants). This Reserve Alternative, when considered in combination with any of the SOCTIIP Alternatives and with the other cumulative projects, is anticipated to have cumulative and unmitigated impacts on biological resources. These impacts are expected to be reduced by the South County Subregion NCCP/HCP. Therefore, while it is assumed that connectivity will be addressed and to some degree accommodated to meet NCCP/HCP goals, the exact manner in which this impact on habitat connectivity would be mitigated cannot be determined at this time.

5.3.9.4 Cumulative Impacts of Habitat Fragmentation

The SOCTIIP and the cumulative projects identified in Table 5.3-5 will cumulatively affect local habitat for a range of smaller vertebrates. However, the available open space on either side of the SOCTIIP corridor and AIO Alternatives is substantial. The amount available on the east side is dependent on the ultimate RMV development and whether Reserve Alternative B-4, B-5, B-6 or B-8 is selected for implementation. The most profound impact from habitat fragmentation will be that on the larger, free-ranging mammals such as mountain lion, mule deer and bobcat that traverse more expansive natural habitat during foraging and breeding activities. The smaller vertebrate species are generally less affected due to their more limited geographic needs. However, there will be additional cumulative impacts even to the smaller animals as predation becomes more prevalent and medium-sized predators increase accordingly and the habitat fragments reduce genetic exchange between more regional populations. The dependence of larger and more mobile wildlife on undercrossings and bridges will also be increased. Indirect impacts on remaining wildlife corridors would be chronic and would likely seriously degrade habitat values along the periphery of the project areas. These indirect impacts may include human disturbance, increased predation and disturbance from pets, lighting, and invasion by non-native plants. Ultimately, it is anticipated that the biodiversity in the remaining open space habitat fragments would decline incrementally over time due to a variety of edge effects, such as the introduction or promotion of non-native species and encroachment by people and pets.

All the SOCTIIP build Alternatives except the I-5 Alternative would contribute to habitat loss and to the indirect effects discussed above. These Alternatives, when considered in combination with the cumulative projects, will have cumulative and unmitigable impacts on biological resources.

5.3.9.5 Cumulative Impacts on Vegetation

The conservation of biological resources in the overall Southern Subregion NCCP/HCP, and the RMV is presented for selected species and habitats in Table 5.3-6. Analysis was conducted to identify the proportion of plant community impacts associated with SOCTIIP Alternatives compared to the resources within the RMV. The results of the comparison are shown in Table 5.3-7. As noted in that Table, impacts of the SOCTIIP corridor Alternatives range from 1.5 percent to approximately 4.5 percent of the plant communities located in the RMV study area. These totals are for all plant communities added together, as shown in Table 5.3-7. For each plant community type, the impact percentages of sensitive plant communities are small, in most cases, less than half a percent. Cumulative impacts for sensitive plant communities are adverse

due to the extent and quality of the biological resources present and the number and location of the projects under consideration.

Population numbers of sensitive plants, with some exceptions noted on Table 5.3-4, are not available. Comparisons with regional habitat are not appropriate due to very specific requirements related to soil type, topography, exposure and microclimate influences that are difficult to predict within an overall plant community. Table 5.3-8 provides a summary of the data available with respect to populations and individuals of sensitive plant species affected by the ultimate corridor configurations. Regardless, the cumulative impacts to sensitive plants is adverse due to the number of individuals impacted by the SOCTIIP Alternatives and the amount of open space and natural habitat impacted by projects in the area, including the RMV development.

5.3.9.6 Cumulative Impacts on Wetlands and Waters of the United States

Direct impacts on wetlands could occur from the development of the projects included in the cumulative impact assessment, including the potential development scenarios outlined for the RMV. Existing regulatory requirements, however, ensure that implementation of these projects will not result in cumulative effects on wetlands. These regulatory requirements include avoidance and minimization of impacts and "...no net loss..." policies imposed by the ACOE and CDFG, as well as the stringent regulations affecting issuance of permits that would adversely affect wetlands under the California Coastal Act.

Indirect impacts of the cumulative projects, including increases in velocity of runoff, wetland inundation, and water quality degradation, can also affect wetlands. Discharges from projects are regulated, and the velocity of discharge is regulated to below erosive levels through conditions placed on individual projects. Inundation levels are also regulated and conditioned on an individual basis. The Regional Water Quality Control Board (RWQCB) regulates water quality. For all of these reasons, and in accordance with the findings presented in the water quality analysis of this EIS/SEIR, there will be no adverse direct or indirect cumulative impacts.

5.3.9.7 Cumulative Impacts on Threatened and Endangered Species

Direct and indirect impacts on threatened and endangered species are discussed in Section 4.12. This Section evaluates cumulative impacts on threatened and endangered species observed in the study area within the context of past, present and reasonably foreseeable future actions.

For some of these species, critical habitat has been designated in the study area. Critical habitat designations provide one measure of the most important remaining habitat for the affected species. Effects on critical habitat are discussed as an indication of potential cumulative impacts.

Fairy Shrimp Species

The vernal pools that constitute the habitat of the San Diego and Riverside fairy shrimp species have been nearly eliminated from coastal Orange County. In 1998, USFWS issued a recovery plan for vernal pool species that includes the San Diego fairy shrimp and the Riverside fairy

shrimp (USFWS 1998). The goal of the recovery plan is to conserve and enhance southern California vernal pool ecosystems with particular emphasis on stabilizing and protecting existing vernal pool species, the San Diego fairy shrimp and the Riverside fairy shrimp, among others, so that these species may be reclassified from endangered to threatened status under the Federal Endangered Species Act (FESA). To accomplish this goal, the recovery plan recommends that existing vernal pools and their associated watersheds be secured from further loss and degradation in a configuration that maintains habitat function and species viability. In addition, the plan provides that population trends must show stability or an increase in numbers for a minimum of ten consecutive years, and monitored over the ten-year period, prior to consideration for reclassification from endangered to threatened.

It is estimated that 75 percent of the San Diego fairy shrimp's and 22 percent of the Riverside fairy shrimp's remaining habitat will be conserved in the Southern Subregion as shown in Table 5.3-6.

San Diego Fairy Shrimp. The San Diego fairy shrimp is restricted to vernal pools in Orange and western San Diego Counties. Critical habitat was designated for the San Diego fairy shrimp in 2000, including 1,629 ha (4,025 ac) of critical habitat in Orange and San Diego Counties. Although this designation was remanded to USFWS by court order, these critical habitat boundaries remain in effect until the new proposed critical habitat designation is made final in May 2004. On April 23, 2003, USFWS reproposed critical habitat, including a total of 2,468 ha (6,098 ac) in Orange and San Diego Counties.

None of the SOCTIIP Alternatives would have a direct impact on vernal pools. The FEC-M, FEC-W, A7C-FEC-M and I-5 Alternatives would affect a small amount (approximately 2.03 ha (5 ac)) of the currently designated critical habitat. Although there would be no impact associated with any of the SOCTIIP build Alternatives, impacts associated with past actions and potential impacts identified for the RMV project would result in adverse cumulative effects.

This impact will be reduced and mitigated for the RMV project, in conjunction with the NCCP/HCP by the following: protection of *key locations* in accordance with the recommendations of the fairy shrimp Species Accounts and management of vernal pools, primarily through exotic species control. The proposed NCCP/HCP Conservation Strategy would substantially contribute to the region-wide recovery of the San Diego fairy shrimp.

Riverside Fairy Shrimp. The Riverside fairy shrimp was formerly widespread in vernal pools pool-like ephemeral ponds and human-modified depressions from coastal southern California south to northwestern Baja California, Mexico. It has been estimated that in Orange County habitat for this species has declined by 90 to 98 percent.

Although critical habitat is not currently designated for the Riverside fairy shrimp, it is in the process of being reproposed after formerly designated critical habitat was vacated and remanded to USFWS by court order in 2002. The previous designation included areas in Los Angeles, Orange, Riverside, San Diego and Ventura Counties.

None of the SOCTIIP build Alternatives would have direct impact on vernal pools. However, the CC Alternative would impact 83.63 ha (206.64 ac) of the previously proposed Riverside fairy shrimp critical habitat. Of the cumulative projects, the Saddleback Meadows project will have impacts on a 0.152 ha (0.4 acre) ephemeral pond. Although there would be no impact associated with any of the SOCTIIP build Alternatives, impacts associated with past actions and potential impacts identified for the RMV project would result in adverse cumulative effects.

This impact will be reduced and mitigated for the RMV project, in conjunction with the NCCP/HCP by the following: protection of *key locations* in accordance with the recommendations of the fairy shrimp Species Accounts and management of vernal pools, primarily through exotic species control. The proposed NCCP/HCP Conservation Strategy would substantially contribute to the region-wide recovery of the Riverside fairy shrimp.

Tidewater Goby

It has been estimated that, since 1900, the tidewater goby has disappeared from approximately 50 percent of formerly occupied lagoons. Its historic range included at least 87 of California's coastal lagoons, from near the Oregon border to Agua Hedionda Lagoon in northern San Diego County. Currently, tidewater gobies occupy eight locations in Camp Pendleton. Two of these populations range from several thousand to 70,000 gobies.

Critical habitat has been designated for this species. Criteria used by USFWS when considering areas to designate as critical habitat for the tidewater goby are lagoons and estuaries with a naturally supporting hydrological regime and relatively low populations of exotic species. The critical habitat for this species in San Mateo Creek includes a 50-year floodplain where wetlands have been delineated as shown in Table 4.12-5. Conservation of critical habitat is vital to tidewater goby survival, because a random event or a combination of unfavorable conditions could extirpate existing populations.

The FEC-M, FEC-W and A7C-FEC-M Alternatives would potentially have direct, but mitigable, impacts on the tidewater goby. Any indirect impacts would occur during construction at San Mateo Creek where some temporary turbidity could occur. The FEC-M, FEC-W and I-5 Alternatives would have impacts on 0.04 mi (0.06 km) of critical habitat. The cumulative projects in Table 5.3-6 would not have any direct effects on the tidewater goby. Because direct impacts of the SOCTIIP build Alternatives can be mitigated, impacts on critical habitat are minor, and there are no direct effects from cumulative projects, the proposed action and future actions will not have adverse cumulative effects.

Southern Steelhead Trout

Southern steelhead (those occurring south of San Francisco Bay) were formerly found in coastal drainages as far south as the Santo Domingo River in northern Baja California. There has been a drastic decline in numbers in nearly all southern streams, and it was believed that the populations south of Malibu Creek had been extirpated. Recent field surveys conducted by CDFG have confirmed the existence of a southern steelhead population in San Mateo Creek, in the southern

portion of the SOCTIIP study area. The San Mateo Creek population is genetically distinct from hatchery steelhead.

The majority of the San Mateo watershed is on federal land. Camp Pendleton and Cleveland National Forest maintain the watershed. Spawning and rearing of juveniles are observed upstream from Camp Pendleton, and migration of adults and juveniles begins near San Onofre State Beach and Camp Pendleton. Conservation activities completed on these federal lands include control of exotic species that are detrimental to steelhead populations, protection of riparian habitat and riparian dependent species, and restoration of the San Mateo watershed for native species.

The National Marine Fisheries Service (NMFS) designated nineteen Evolutionarily Significant Units (ESU) of critical habitat for the southern steelhead trout, but did not include the San Mateo Creek within the critical habitat designation. However, this critical habitat designation was vacated and remanded to NMFS by court order as of April 2002.

The FEC-M, FEC-W and A7C-FEC-M Alternatives would potentially have direct, but mitigable, impacts on the southern steelhead. Any indirect impacts would occur during construction at San Mateo Creek where some temporary turbidity could occur. The cumulative projects in Table 5.3-6 would not have any direct effects on the southern steelhead. Because direct impacts of the SOCTIIP build Alternatives can be mitigated and there are no direct effects from cumulative projects, the proposed action and future actions will not have adverse cumulative effects.

Arroyo Toad

The arroyo toad was historically found along the length of drainages in southern California from San Luis Obispo to San Diego County. It has been extirpated from 76 percent of its historically documented habitat in California, however; in Orange County, it is now found only in scattered populations along San Juan and San Mateo Creek watersheds. The conservation of all of its remaining habitat is proposed for the Southern Subregion as shown in Table 5.3-6.

A recovery plan for the arroyo toad was issued in 1999. Under the recovery plan, where management plans have been approved and implemented on federally managed lands, the arroyo toad can be considered threatened rather than endangered. Such plans exist for San Mateo and San Onofre Creeks. These are considered wildlife corridors connecting areas of Camp Pendleton to the southern part of the SOCTIIP study area. These recovery areas provide conservation, maintenance and restoration of the riparian and uplands habitat used for breeding populations of arroyo toads.

Critical habitat was designated for the arroyo toad, including areas in the San Juan Creek and San Mateo Creek watersheds. Critical habitat was vacated in 2002 by court order, however. Table 4.12-5 describes critical habitat impacts based on the prior designation.

The FEC-M, FEC-W and A7C-FEC-M Alternatives could have direct and indirect impacts on the arroyo toad (up to two individuals), although some of these effects can be mitigated.

Because these alternatives would be aligned along creeks providing arroyo toad habitat, their long term effects would still be adverse. These Alternatives, as well as the CC Alternative, would also affect formerly-designated critical habitat. The FEC-M, FEC-W and A7C-FEC-M Alternatives would affect 0.46 km (0.28 mi), while the CC Alternative would affect 0.40 km (0.25 mi). There are no direct effects from the cumulative projects listed on Table 5.3-5. In conjunction with past and present projects, the proposed SOCTIIP would contribute to adverse cumulative effects.

The NCCP/HCP is expected to provide for the recovery of the arroyo toad through the Habitat Reserve design and Adaptive Management Program, which will include the following: protection of *key locations* of the arroyo toad, enhancement and restoration in creeks and watersheds through specific actions such as control of non-natives (plants, such as giant reed, and bullfrogs), grazing management and sediment management.

Southwestern Willow Flycatcher

The southwestern willow flycatcher's historic range included southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado and extreme northwestern Mexico. In California, it included all lowland riparian areas in the southern third of the state. Overall, the current range is similar to the historical range, but the quantity of suitable habitat within that range is much reduced from historical levels.

Approximately 121 breeding territories of southwestern willow flycatchers were known to exist in California in 2000, with two territories recently documented in south Orange County. Surveys conducted between 1993 and 1996 throughout the known range of this flycatcher produced a total of 549 territories. Population trend information since the mid-1980s shows decline in most areas. Depending on the ultimate reserve configuration, from 71 to 100 percent of remaining habitat in the study area is proposed for conservation as shown on Table 5.3-6.

A recovery plan for the southwestern willow flycatcher was adopted on March 5, 2003. Critical habitat had been designated, but this designation was vacated and remanded to USFWS by court order. USFWS expects to repropose critical habitat in 2004. The San Diego Multiple Species Conservation Plan has protected 3,600 ha (9,000 ac), which includes 75 percent of the remaining riparian nesting habitat in San Diego County. Protected areas are linked to previously-designated critical habitat in Orange and Riverside Counties. The NCCP Program in Orange County includes 14,920 ha (37,300 ac) of formerly designated critical habitat and requires that surveys be conducted to ensure the safety of occupied nesting habitat.

None of the SOCTIIP build Alternatives would have direct or indirect impacts on the southwestern willow flycatcher or would affect critical habitat. There are no direct or indirect effects from cumulative projects as shown in Table 5.3-5. The SOCTIIP and other future actions would not have adverse cumulative impacts.

California Gnatcatcher

The California gnatcatcher's habitat has been significantly diminished and fragmented. It is estimated that, between 1945 and 1990, 50 percent of coastal sage scrub (CSS) in Orange County and 60 to 65 percent of CSS in San Diego County was lost. NCCP field surveys indicate that about 1,000 pairs of gnatcatchers may currently occur in Orange County.

In 2000, critical habitat was designated for the California gnatcatcher. Although this designation was remanded to USFWS, it remains in effect until USFWS redesignates critical habitat in 2004. The current designation includes all lands within the species' geographical home range and lands that are likely to be used for reproduction, territory claims or migration. Both current and proposed critical habitat in the project area contains substantial core populations of California gnatcatcher and sage scrub communities. Depending on the ultimate reserve configuration, from 73 to 85 percent of remaining habitat in the study area is proposed for conservation a shown in Table 5.3-6.

There will be direct impacts on the California gnatcatcher from all the SOCTIIP build Alternatives, as shown earlier in Table 4.12-3. There will be impacts on critical habitat from all Alternatives except the I-5 Alternative. The greatest impacts are caused by the FEC-M, FEC-W, and A7C-FEC-M Alternatives. A number of the cumulative projects will also have impacts on the California gnatcatcher, including Whispering Hills, Coastal Ranch, Pacific Point/San Juan Meadows and Marblehead Coastal as shown in Table 5.3-5. Between 7 and 16 use areas of the California gnatcatcher are directly impacted by the SOCTIIP build Alternatives. Projects listed in Table 5.3-5 have reported that cumulatively an additional 56 pairs and 19 individuals would be impacted. There will be a cumulative adverse impact to the California gnatcatcher as contributed by the SOCTIIP build Alternatives (7 to 16 use areas) and planned or future projects in south Orange County (56 pairs and 19 individuals). In conjunction with past, present and reasonably foreseeable future projects, the SOCTIIP build Alternatives would have adverse cumulative effects.

Least Bell's Vireo

The least Bell's vireo's historical breeding range extended from Baja California to interior northern California. It has been estimated that the species has been extirpated from over 95 percent of its former range. Until very recently, the least Bell's vireo had been observed in very low numbers in Orange County (e.g. no observations in 1988 and 1989). However, during the last decade, the vireo population in Southern California has been on the increase, and during 2002, at least 111 territories were known to be present in Orange County. Territorial least Bell's vireos were observed at 16 locations in the SOCTIIP study area during 1995 surveys.

Critical habitat has been designated in Santa Barbara, Ventura, Los Angeles, Riverside, San Bernardino and San Diego Counties. Critical habitat has not been designated in Orange County; although least Bell's vireos have been identified in the San Juan Creek and San Mateo Creek watersheds, no critical habitat has been designated in the project area. Depending on the ultimate reserve configuration, from 83 to 87 percent of remaining habitat in the study area is proposed for conservation as shown in Table 5.3-6.

There is the potential for direct impacts on two use areas from the AIO Alternative and for direct impacts on one use area from the CC, CC-ALPV and A7C-ALPV Alternatives. Mitigation measures would be applied to these impacts. There will also be impacts from the cumulative projects, including Prima Deshecha Sanitary Landfill, Whispering Hills and Arroyo Trabuco Golf Course as shown in Table 5.3-5. A total of nine pairs were reported as impacted by these projects. In conjunction with past, present and reasonably foreseeable future projects, the SOCTIIP build Alternatives would have adverse cumulative effects.

Pacific Pocket Mouse

The Pacific pocket mouse suffered a rapid depletion of population starting in the 1940s, as a result of coastal development and resultant habitat destruction and fragmentation. The species was found in the San Joaquin Hills in Orange County from 1968 through 1971. It was believed extinct for 20 years, until a population was found in 1993 in the Dana Point headlands. The species is currently known to occur only on privately-owned land near Dana Point and at two locations on Camp Pendleton. Trapping efforts in 1995 and 1996 caught 33 and 22 individuals, respectively, in the study area. A focused survey in 2002 caught four individuals. At Dana Point Headlands, 25 to 36 mice were detected in 1993.

The USFWS adopted a recovery plan for the Pacific pocket mouse in 1998, and the population is located in a recovery area. No critical habitat has been designated because USFWS concluded that the species would not benefit from critical habitat; the designation would increase threats to the population because of collection activity.

All the SOCTIIP build Alternatives have been designed to avoid Pacific pocket mouse habitat, and there are no direct or indirect effects from the cumulative projects as shown in Table 5.3-5. There is the potential for indirect impacts from the FEC-M, FEC-W and A7C-FEC-M Alternatives but it is mitigated through project design.

Peregrine Falcon

Peregrine falcons once ranged over most of California and across North America. A serious decline in numbers began in the 1940s, due to pesticide poisoning. In the mid 1970s, only 10 breeding pairs were known in California. The population has since increased in response to legal protection, restrictions on organochlorine pesticides (e.g., DDT) in the United States and Canada, and captive-breeding and release It is estimated that there are more than 250 breeding pairs of peregrine falcons in California today.

Impacts to the peregrine falcon would result from increased human proximity and habitat loss, from the SOCTIIP and from the cumulative projects. Indirect construction impacts from the SOCTIIP would include noise, lighting and other edge effects, including disruption of the prey base. Because this species is not known to nest in the study area and is highly mobile, impacts from the SOCTIIP and from the cumulative projects are unlikely to result in mortality or in the displacement of a substantial number of individuals. Therefore, there are no adverse cumulative impacts.

Swainson's Hawk

During the early 1900s, the Swainson's Hawk nested in lowlands throughout most of California, maintaining populations as large as 17,000 pairs. Ten years ago, only 550 nesting pairs were found in California and numbers have been slowly declining. One pair has been known to nest in Los Angeles County during recent years. There is no evidence of breeding in the study area, but they occasionally forage there during annual migrations to and from wintering grounds in South America. No direct impacts are expected as a result of the SOCTIIP build Alternatives, although minimal indirect effects occur from human proximity and loss of foraging habitat. The SOCTIIP build Alternatives in combination with future projects would not be expected to have adverse cumulative impacts.

Thread-Leaved Brodiaea

The thread-leaved brodiaea's historical range extends from Los Angeles and San Bernardino Counties through eastern Orange and western Riverside Counties to Carlsbad in northwestern San Diego County. Its range has been diminished and fragmented and at least nine populations have been extirpated, primarily in San Diego County. In 2002, it was estimated that there were between 11,650 and 14,650 individual plants throughout Orange County. Thirty-four populations, with over 4,400 individuals, were identified in the SOCTIIP study area in 2001.

The USFWS is in the process of preparing a recovery plan for this species, along with eight other species in southern California, and the SOCTIIP study area could potentially be located in a recovery area. Critical habitat has not been designated for the species because there was no imminent benefit that would result from critical habitat designation.

The FEC-M, FEC-W, A7C-ALPV and A7C-FEC-M Alternatives will result in direct and indirect impacts on individuals and populations from (see Table 4.12-3). Direct and indirect impacts will also result from the cumulative projects as shown in Table 5.3-5. Although mitigation measures will reduce these effects, including seed collection and the translocation of plants, little is currently known about the ability to successfully translocate these plants. Because the species is not widespread in California, the plants in the project area represent a substantial portion of the regional population, and the success of mitigation measures for direct impacts is not assured, there would be adverse cumulative impacts on the thread-leaved brodiaea.

The NCCP/HCP is expected to provide for the conservation of this species through the Habitat Reserve design and Adaptive Management Program. Actions are expected to include the protection of *key locations* of the brodiaea, control of non-native invasive species, fire management and translocation of smaller populations to areas with clay topsoils and without competing plants.

5.3.10 CUMULATIVE IMPACTS RELATED TO WILD AND SCENIC RIVERS

The study area for wild and scenic rivers is the area covered by the watersheds in south Orange County as shown earlier in Figure 4.8-1. As discussed in Section 4.13 (Affected Environment,

Impacts and Mitigation Measure Related to Wild and Scenic Rivers), there are no rivers as designated as "Wild and Scenic" pursuant to the Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.) in the SOCTIIP study area. Therefore, no cumulative impacts to wild and scenic rivers would occur under the SOCTIIP build or No Action Alternatives.

5.3.11 CUMULATIVE IMPACTS RELATED TO COASTAL BARRIERS

The study area for coastal barriers is the off shore area from approximately Dana Point south to Camp Pendleton. As discussed in Section 4.14 (Affected Environment, Impacts and Mitigation Measure Related to Coastal Barriers), there are no coastal barriers subject to the Coastal Barrier Resource Act (CBRA) or the Coastal Barrier Improvement Act of 1990 (CBIA, P.L. 101-591; 104 Stat. 2931) in the SOCTIIP study area. Therefore, no cumulative impacts to coastal barriers would occur under the SOCTIIP build or No Action Alternatives.

5.3.12 CUMULATIVE IMPACTS RELATED TO THE COASTAL ZONE

An area in the southern part of the SOCTIIP study area is in the Coastal Zone. Development in the Coastal Zone would require an application for a Coastal Development Permit (CDP).

The California Coastal Act (CCA) of 1976 (Public Resources Code Section 3000 et seq.) was enacted in 1976 to provide for the long term protection of California's coastline for the benefit of current and future generations. The Coastal Zone, as defined and depicted, is a 1,769 km (1,100 mi) long stretch from Oregon to the border of Mexico reaching 4.8 km (three mi) out to sea to a varying boundary of a few blocks to eight km (five mi) inland. The Coastal Zone establishes a jurisdictional boundary for the CCC. The Coastal Zone boundary in south Orange County is shown on Figure 5.3-31. The defined Coastal Zone as shown in Figure 5.3-3 is the study area for the SOCTIIP.

The CCC's concerns involve environmentally sensitive habitat areas, alterations of rivers or streams, fish and wildlife resources, wetland areas, archaeological or paleontological resources, and visual qualities. These concerns and potential cumulative impacts of SOCTIIP and other developmentally related environmental parameters are discussed elsewhere in this Section, under biological, cultural, paleontological and visual resources.

5.3.13 CUMULATIVE IMPACTS RELATED HISTORIC AND ARCHEOLOGICAL RESOURCES

The method of analyzing cumulative impacts for historic and archaeological preservation takes into consideration development trends in a given area and evaluates cumulative impacts by environmental parameter, e.g., historic and archaeological resources, in the relative context of what impacts the development trend has had and will potentially have on cultural resources in the study area shown on Figure 5.1-1. The study area for cumulative cultural resources impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east to into Camp Pendleton, as shown on Figure 5.1-1.

Table 5.3-8 lists the ongoing and predicted projects in the SOCTIIP study area, the potential impacts of those projects on known historic and archaeological resources, and mitigation measures incorporated in those projects to avoid or substantially reduce identified adverse impacts.

Cumulative impacts on historic and archaeological resources result when archaeological sites and historical structures and buildings are destroyed or become unavailable for use by Native Americans (archeological sites) or for study and observation by scientists as a result of development projects in an area. As described earlier in Section 4.16 (Affected Environment, Impacts and Mitigation Measures Related to Historic and Archaeological Resources), the SOCTIIP build Alternatives would potentially result in adverse impacts during construction resulting in the destruction of archaeological resources and the built environment, the degradation of visual setting for the built environment, and in areas that are currently subsurface, the loss of artifacts, stratigraphic information, paleobotanical information, and other avenues of study associated with archaeological resources. Indirect impacts are primarily the result of increased human presence, and the increased opportunity for additional impact. This increased human presence is the result of the development trends discussed in Section 5.1.3 and also the recent past, present and future projects shown in Table 5.1-1. The majority of projects requiring construction in the SOCTIIP area have the potential to create the same types of adverse and indirect impacts on archaeological resources as the SOCTIIP build Alternatives.

The destruction of archaeological sites and the built environment produces a substantial cumulative impact because these non-renewable records of past cultures become permanently unavailable. In assessing cumulative impacts, it is the number and type of archaeological resources and historic structures already lost to study in Orange County and throughout southern California due to existing development that must be considered in addition to the additional projects planned for the future.

There is a cumulative adverse impact on historic and archaeological resources as a result of the SOCTIIP build Alternatives and other projects. With the implementation of mitigation measures, these impacts would be substantially mitigated although the impact is cumulatively adverse. Therefore, SOCTIIP build Alternatives contribute to a cumulative adverse impact related to historic and archaeological resources.

Build out of the MPAH and the land uses assumed under the No Action Alternatives would be expected to result in adverse impacts related to archaeological and historic resources which may not be fully mitigated. As a result, the No Action Alternatives would contribute to a cumulative adverse impact on cultural resources. However, because the No Action Alternatives do not propose any SOCTIIP improvements, these Alternatives would not contribute to cumulative impacts related to SOCTIIP improvements on historic and archaeological resources.

5.3.14 CUMULATIVE IMPACTS RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTE SITES

Table 5.3-9 lists the cumulative projects in the SOCTIIP study area, the potential impacts of those projects related to hazards and hazardous materials and mitigation measures incorporated

in those projects to avoid or substantially reduce identified adverse impacts. The study area for cumulative hazardous materials and hazardous wastes sites impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east to into Camp Pendleton, as shown on Figure 5.1-1.

Aerial photographs were reviewed for the entire SOCTIIP study area, as discussed earlier in Section 4.17 (Affected Environment, Impacts and Mitigation Measures Related to Hazard Materials and Hazard Waste Sites) under Methodology. Because of the large size of the area of interest and the overlap of photographs, photographs were examined by compiling mosaics and examining overall patterns of growth and development along the alignments of the SOCTIIP build Alternatives. Because the scale of the photographs did not in all cases allow the identification of individual sites, the emphasis in this discussion is on historic and current patterns of regional and local development, and land use, rather than the history of individual sites or buildings in the SOCTIIP study area. Photograph sets dated 1959, 1967, 1975, 1982 and 1999 were examined. Because several parts of the study area are currently undergoing rapid development, the 1999 photographs may not fully represent current conditions. This research confirmed the development trends discussed in Section 5.1.3 and the recent past, present and future projects listed in Table 5.1-1.

As described earlier in Section 4.17, the SOCTIIP build Alternatives could result in short term adverse impacts during construction related to military sites, past pesticide and herbicide use on agricultural land, USTs, LUST sites, auto services, dry cleaners, existing utilities, wastewater treatment plants, electrical substations, petroleum pipelines, asbestos in existing structures, aerially deposited lead, undocumented abandon oil wells or test borings, release of hazardous materials due to construction activities and Prima Deshecha Landfill. As shown in Table 5.3-9, the majority of hazardous materials impacts associated with other projects in the SOCTIIP area will be short term construction impacts. The use, handling, storage, transport and remediation of hazardous materials and wastes during construction for the SOCTIIP build Alternatives and the other projects in Table 5.3-9 are regulated by federal, state and local regulations, and by mitigation measures included in those projects. Because the SOCTIIP build Alternatives and these other projects will likely not all be under construction simultaneously and because of existing regulations, the SOCTIIP build Alternatives, when considered with these other projects, will not result in a cumulative short term adverse impact related to hazardous materials.

As described earlier in Section 4.17.3.2, the SOCTIIP build Alternatives will introduce a potential new hazard associated with highway transport of hazardous materials to areas not presently subject to this risk. This potential long term impact of the build Alternatives will be mitigated substantially based on compliance with existing federal, state and local regulations related to the transport of hazardous materials and wastes. The SOCTIIP build Alternatives will not contribute to cumulative adverse impacts related to hazardous materials.

The No Action Alternatives would not result in a SOCTIIP contribution to cumulative impacts related to hazardous materials and hazardous waste sites because no SOCTIIP construction would occur under these Alternatives. However, build out of the MPAH and the land uses assumed under the No Action Alternatives could result in short and/or long term adverse impacts related to hazardous materials and wastes. Therefore, build out under the No Action Alternative

could contribute cumulatively to impacts related to hazard materials and hazard waste sites although there would be no SOCTIIP related contribution.

5.3.15 CUMULATIVE IMPACTS RELATED TO AESTHETICS AND VISUAL RESOURCES

Table 5.3-10 lists the cumulative projects in the SOCTIIP study area, which are shown in Figure 5.1-1, and also lists the potential impacts of those projects related to visual resources and mitigation measures incorporated in those projects to avoid or substantially reduce identified adverse impacts. As described in Section 5.1.3, development trends in the study area have incrementally changed the appearance of parts of the study area from agricultural and open space to urbanized viewscape. This trend is expected to continue with the development of projects listed in Table 5.1-1. The study area for cumulative visual resources impacts is generally the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east to into Camp Pendleton, as shown on Figure 5.1-1. However, as discussed in detail in Section 4.18 (Affected Environment, Impacts and Mitigation Related to Visual Resources), in some cases the study area extends beyond the physical limits of the land use study area, because views are available over longer distances, to more distant hills or from higher topography across broader areas. Section 4.18 describes the study area for visual resources in detail.

As described earlier in Section 4.18 (Affected Environment, Impacts and Mitigation Measures Related to Visual Resources), the SOCTIIP build Alternatives would result in short term adverse impacts related to visual resources during construction. These impacts would be considered adverse but less than substantial because they will last during the period of construction only. All of the corridor Alternatives and the AIO Alternative will introduce the urban elements of the toll road into areas that currently have a rural visual character. The urbanizing elements of these alternatives in rural areas include the toll or arterial road surfaces, connector ramps and toll plazas. The corridor and AIO Alternatives would, together with other projects in the area, contribute to changing the existing visual character of the rural areas crossed by the alternatives to a more urban visual character. Therefore, the SOCTIIP build Alternatives, with the exception of the I-5 Alternative, when considered with other projects in the area, are anticipated to contribute to a cumulative long term adverse impact related to visual resources in the study area.

The A7C-FEC-M and A7C-ALPV Alternative would have the greatest impacts on visual resources because they would result in unavoidable adverse visual impacts at five and six locations respectively, and would result in unavoidable adverse impacts to a regionally outstanding view. The other build Alternatives would result in reduction of visual quality at fewer locations and would not impact regionally outstanding views.

Build out of the MPAH and the land uses assumed under the No Project Alternatives would result in adverse visual impacts and could contribute to cumulative adverse visual impacts in the SOCTIIP study area. However, the No Action Alternatives would not contribute to a cumulative change in visual character in the study area because no SOCTIIP related improvements would be constructed under these Alternatives.

5.3.16 CUMULATIVE IMPACTS RELATED TO ENERGY

The study area for cumulative energy impacts is the generally the same as the traffic study area as defined in Section 5.3.1 (Cumulative Impacts Related to Traffic and Circulation). The cumulative projects listed in Tables 5.1-1 to 5.1-5 are assumed as the cumulative development in this area for the energy analysis.

As described earlier in 4.19 (Affected Environment, Impacts and Mitigation Measures Related to Energy), the SOCTIIP build Alternatives would require energy resources, related to energy used during construction. In the long term, during operations of the SOCTIIP build Alternatives, energy will be used for vehicles operating on the road facilities. The long term energy use with the SOCTIIP build Alternatives would either not vary substantially from energy use under the No Action Alternatives or would be reduced compared to energy use under the No Action Alternatives.

Although available documentation for the other cumulative projects in the study area, shown in Tables 5.1-1 to 5.1-5, did not provide information on energy use of those projects, it is assumed that each of those projects will require energy sources during construction and operations. As discussed in Section 5.1.3, development trends in the study area have been and continue to be converting from rural to urban uses and would require provision of utilities such as natural gas and electricity to support those uses. It is further assumed that the cumulative effect of the combined long term energy use for the operations of these projects will be adverse on regional energy supplies.

However, because the SOCTIIP build Alternatives will not result in an increase in energy use in the long term in the study area, they will not contribute to a cumulative adverse effect on energy. The SOCTIIP build Alternatives, when considered with other projects, would not result in a cumulative short term adverse impact related to energy.

Build out of the MPAH and the land uses assumed under the No Action Alternatives would result in increased energy use compared to existing conditions. Because there are no SOCTIIP improvements under the No Action Alternatives, these Alternatives would not result in incremental energy impacts when considered with the other projects in the study area.

5.3.17 CUMULATIVE IMPACTS RELATED TO EARTH RESOURCES

Table 5.3-11 lists the cumulative projects in the SOCTIIP study area, the potential impacts of those projects related to geotechnical, geology and soils issues, and mitigation measures incorporated in those projects to avoid or substantially reduce identified adverse impacts. The study area for cumulative earth resources impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east into Camp Pendleton, as shown on Figure 5.1-1. The development trend is South Orange County as described in Section 5.1.3 would not have had a cumulative impact on earth resources because as each development is implemented it is mitigated through its design.

As described earlier in Section 4.20 (Affected Environment, Impacts and Mitigation Measures Related to Earth Resources), the SOCTIIP build Alternatives would result in minor impacts related to temporary groundwater level lowering effects during construction, potential need for excess soil disposal and increased impermeable surfaces. The A7C-ALPV Alternative will result in a permanent impact to one mapped spring. These impacts of the SOCTIIP build Alternatives would be substantially mitigated and/or avoided based on project mitigation and standard design and construction practices.

The other projects have identified impacts and mitigation similar to the SOCTIIP build Alternatives. These impacts would be substantially mitigated or avoided. Therefore, because the impacts of the SOCTIIP build Alternatives and other cumulative projects on earth resources would be substantially mitigated or avoided, no cumulative impacts are anticipated.

Build out of the MPAH and the land uses assumed under the No Action Alternatives would result in earth resources impacts similar to the SOCTIIP build alternatives. It is expected that these potential adverse impacts could be avoided and/or substantially mitigated and would not contribute to cumulative adverse impacts related to earth resources. Because there are no SOCTIIP improvements under the No Action Alternatives, these Alternatives would not have incremental impacts individually or when considered with the other projects in the study area on earth resources.

The Prima Deshecha Sanitary Landfill GDP suggests that there is a demand for soil to be used as cover material. Considering the proximity of some of the SOCTIIP build Alternatives to the landfill, and the potential for excess soil to be generated from construction of most of the build alternatives, it would appear possible that there is a potential for the two projects to coordinate and therefore make use of excess soil that may be available during construction of the SOCTIIP Alternatives.

5.3.18 CUMULATIVE IMPACTS RELATED TO MILITARY USES

Impacts to the Military Mission and uses at the Base have been occurring over a long period of time. As the area to the north of the base is developed, which is generally described in Section 5.1.3, the presence of residential development so close to the base has created a situation where ongoing training activities become a nuisance to the newer surrounding development. In addition other forms of encroachment also have impacted the training operations at the Base. This has become such an encompassing problem that actions resulting in any impact to the Base contribute to a cumulative adverse impact on the Military Mission for MCB Camp Pendleton. The study area for potential cumulative impacts on MCB Camp Pendleton is the Base and its airspace and seaspace.

5.3.18.1 Cumulative Impacts to Military Uses

Concerns of MCB Camp Pendleton Related to Cumulative Encroachment Impacts on Their Military Mission

For cumulative impacts related to Camp Pendleton, one of the most substantive issues for consideration is the issue of encroachment as explained in detail in Section 4.21 (Affected Environment, Impacts and Mitigation Measures Related to Military Uses). Today, the ability of Marine Corps units to train effectively at Camp Pendleton is being eroded by encroachment on many fronts. Increasing urbanization, environmental restrictions and increasing requests from civilian authorities for use of Camp Pendleton's land, airspace and seaspace threaten the long-term sustained use of this Marine Corps installation. Encroachment at Camp Pendleton comes in many forms, but generally is an outgrowth of two major factors: increased environmental regulations and increased urbanization in the regional area around the Base. Consideration must be given to projects that might diminish or prevent the ability of MCB Camp Pendleton to conduct and/or expand its Military Mission and training capabilities by eliminating Base land areas where new facilities or training areas might be added in the future or by increasing non-military land uses immediately adjacent to the Base.

Previous encroachments onto Camp Pendleton, discussed earlier in Section 4.21, include:

- Restrictive environmental regulations which limit areas on the Base that can be used for training activities and which limit the types of training activities which can be conducted on parts of the Base.
- Land for the San Onofre State Beach park including both inland and beach areas totaling approximately 810 ha (2,000 ac).
- Land for the San Onofre Nuclear Generating Station facility (162 ha; 400 ac).
- Agricultural activities (527 ha, 1,300 ac).
- A Boy Scout campground (20 ha, 50 ac).
- Six public elementary schools (37 ha, 92 ac).
- A wide range of easements and other public utility rights-of-way for a variety of transmission lines for electricity, natural gas, water distribution, aviation fuel, telephone, telecommunication and fiber optic cables, which crisscross a number of areas on the Base.
- Easements and rights-of-way for I-5 and a double-tracked rail line (for both freight and passenger train operations).

All these facilities and easements represent various forms of man-made encroachments, which in their own individual ways, each impede the Marine Corps' ability to use certain areas of the Base for military training operations.

Encroachment of the SOCTIIP Alternatives on MCB Camp Pendleton

Camp Pendleton is considered by the United States Department of Defense (DoD) to be a unique national asset, and any degradation of this installation's ability to train Marines to fight and win on the battlefield is not in the best interests of the United States. The types of encroachment the Base has faced over the years indicate why it is critical to limit, as much as possible, any further encroachment on the Base and to military training uses on the Base. This has been exacerbated by the heightened military response and activities associated with the events of September 11, 2001 and the war on Iraq in 2003. It is for these reasons that the Commandant of the Marine Corps (CMC) reiterated in February 2002 the Marine Corps' longstanding position that only the FEC-M and FEC-W Alternatives alignment would be considered by Camp Pendleton, if they meet conditions described in the 1988 Commandant Letter and the 1992 "Statement of Intent." Because the A7C-FEC-M Alternative shares the same alignment on the Base as the FEC Alternative, it is assumed that the A7C-FEC-M Alternative would also be considered by Camp Pendleton, if it meets the conditions in the 1988 Commandant Letter and the 1992 "Statement of Intent." Both Camp Pendleton and the CMC have consistently indicated that any further encroachment into the Base, beyond the FEC alignment, would be unacceptable.

The CC Alternative includes widening of a short segment of I-5 in the northwestern most part of San Diego County, adjacent to Camp Pendleton. However, this Alternative will not require acquisition of any additional I-5 right-of-way from Camp Pendleton; it consists only of widening the existing freeway facility within the existing freeway right-of-way. Therefore, this Alternative does not result in new encroachments into Camp Pendleton.

The I-5 Alternative results in the widening of I-5 adjacent to the northernmost parts of the Base. This Alternative would require the acquisition of easements for small amounts of land from the Base, in the area currently occupied by SOSB.

With the exception of the CC Alternative, the other build Alternatives on and near the Base would adversely impact the Base as a result of the acquisition of easements from the Base. The I-5 Alternative would take only a small amount of land from the State Beach; the other alternatives bisect the Base and result in both the permanent acquisition of land for the road and the permanent fragmentation of Base land on the north side of the road from the rest of the Base on the south side of the road.

Cumulative Projects in the SOCTIIP Study Area

Camp Pendleton reviewed the Notice of Preparation (NOP) for the proposed Ranch Plan for the Rancho Mission Viejo (RMV) and provided comments on that NOP to the County of Orange (March 24, 2003). Based on the preliminary land use plans for the RMV as described in the NOP, Camp Pendleton identified a potential conflict between the existing military training uses on Camp Pendleton and proposed residential uses in Planning Area (PA) 8 on the Ranch Plan. Camp Pendleton specifically indicated that existing noise generating activities on the Base associated with aviation and ground training activities could adversely impact planned residential uses and future residents in PA 8. Camp Pendleton requested that the EIR for the Ranch Plan

address the potential conflicts between the existing military uses on Camp Pendleton and the planned residential uses on RMV in the vicinity of the Camp Pendleton boundary. If residential uses are adopted for lands adjacent to Camp Pendleton such as in PA 8, Camp Pendleton requested that those future residents be required to sign disclosures ensuring that they understand and are aware of the types of military training operations that generally occur at Camp Pendleton, including aviation and ground training activities.

Camp Pendleton further requested that the objectives of the Ranch Plan be expanded to include the support of land uses compatible with the long term sustainability of natural habitats and species on adjacent open space lands such as parts of Camp Pendleton, including the prevention of edge effects on those lands.

All these concerns are directly related to the potential for encroachment impacts on Camp Pendleton under the Ranch Plan, if potentially noise sensitive land uses such as residential uses are developed in the vicinity of the Camp Pendleton boundary with the RMV or if the planned land uses are not compatible with existing open space and habitat uses. As such, it is assumed that the proposed RMV plan could result in adverse encroachment impacts on Camp Pendleton, if the proposed residential uses in PA 8 are developed without adequate analysis in the EIR and without adequate notification to future residents of that development or if the Ranch Plan land uses are not compatible with adjacent open space and habitat uses.

None of the other cumulative land use and transportation projects in the SOCTIIP study area, including build out of the MPAH and the land uses assumed under the build and No Action Alternatives, will result in potential environmental impacts or encroachments on Camp Pendleton. The available environmental documentation and information for these projects do not indicate adverse impacts related to Camp Pendleton and the Mission of Camp Pendleton. This is because these projects do not encroach directly onto the Base, are not directly adjacent to the Base and/or do not include uses which would potentially result in adverse impacts on the Base. In addition, for some projects, there is either no environmental documentation prepared to date or the documentation was not available from the applicable agencies for this analysis.

Potential For Cumulative Impacts Related To Military Impacts

As described in Section 4.21 (Affected Environment, Impacts and Mitigation Measures Related to Military Uses), the following SOCTIIP build Alternatives could potentially result in short and long term adverse impacts related to Camp Pendleton and its Military Mission:

- FEC-W Alternative.
- FEC-M Alternative.
- A7C-FEC-M Alternative.
- CC Alternative.
- I-5 Alternative.

Each of these alternatives encroaches onto or is immediately adjacent to the Base. When considered with other projects having easements granted by the Base, including the 1994 North County Transit District (NCTD) easement for its rail facilities and other development adjacent to

the Base in both Orange and San Diego Counties, there continues to be a reduction of land buffer area around MCB Camp Pendleton. Three SOCTIIP corridor Alternatives share a common alignment (the FEC-W, FEC-M and A7C-FEC-M alignments) on the Base and not only reduce or eliminate part of the buffer that currently exists, but each also reduces the land on the Base that would be available for military training or as a buffer between on Base military training activities and off site land uses. The CC Alternative includes widening of a short segment of I-5 adjacent to Camp Pendleton but will not require acquisition of any right-of-way from Camp Pendleton and would not result in new encroachments into Camp Pendleton. The I-5 Alternative would remove a small part of the Base in the northernmost part of SOSB. In summary, these SOCTIIP build Alternatives and other projects near the Base will continue to contribute to cumulative adverse impacts on Camp Pendleton associated with encroachment onto the Base and the reduction in buffer along the Base boundary. These encroachments and reduction in buffer are considered by the DoD and CMC to directly affect the ability of the Corps to most effectively perform its Military Mission at Camp Pendleton.

The remaining SOCTIIP build Alternatives and the No Action Alternatives would not contribute to cumulative adverse impacts on Camp Pendleton because these Alternatives do not propose any SOCTIIP improvements on or in the immediate vicinity of Camp Pendleton.

5.3.19 CUMULATIVE IMPACTS RELATED TO MINERAL RESOURCES

The study area for cumulative mineral resources impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east into Camp Pendleton, as shown on Figure 5.1-1. The cumulative projects in Tables 5.1-1 to 5.1-5 were assessed for their potential to adversely impact mineral resources in the study area. The only cumulative project that impacts mineral resources in the SOCTIIP study area is the Arroyo Trabuco Golf Course. That project would result in an adverse impact related to mineral resources as a result of reduction in the long term availability of sand and gravel resources on this project site. Although not fully defined at this time, it is possible that the proposed land uses on RMV under the Ranch Plan could adversely affected opportunities to extract sand and gravel resources on the Ranch, at the location of the previously operated sand and gravel extraction facility. The minor impacts of the SOCTIIP build Alternatives related to sand and gravel resources, combined with the adverse impacts of the Golf Course and the potential impacts of the Ranch Plan on sand and gravel resources on RMV, would be a cumulative adverse impact on mineral resources in the SOCTIIP study area.

Build out of the MPAH and the land uses assumed under the No Action Alternatives could result in adverse impacts on mineral resources and could not contribute to a cumulative adverse impact related to mineral resources. Because the No Action Alternatives do not proposed any SOCTIIP improvements, these Alternatives would not have any impacts on mineral resources and, therefore, would not contribute to cumulative impacts on mineral resources in the study area.

5.3.20 CUMULATIVE IMPACTS RELATED TO PALEONTOLOGICAL RESOURCES

Table 5.3-12 lists the cumulative projects in the SOCTIIP study area, the potential impacts of those projects related to paleontological resources and mitigation measures incorporated in those

projects to avoid or substantially reduce identified adverse impacts. The study area for cumulative paleontological resources impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east into Camp Pendleton, as shown on Figure 5.1-1. The cumulative projects in Tables 5.1-1 to 5.1-5 were assessed for their potential to adversely impact paleontological resources in the study area.

Cumulative impacts on paleontological resources result when rock units and associated fossils become unavailable for study and observation by scientists as a result of multiple development projects in an area. As described earlier in Section 4.23 (Affected Environment, Impacts and Mitigation Measures Related to Paleontological Resources), the SOCTIIP build alternatives would potentially result in adverse impacts during construction related to the destruction of paleontological resources, the destruction of geologic formations, both in natural outcrop and in areas that are currently subsurface, and the loss of data associated with paleontological resources. Long term impacts are primarily the result of increased human presence, and the increased opportunity for additional impact. The majority of cumulative projects requiring construction in the SOCTIIP area have the potential to create the same types of adverse impacts on paleontological resources as the SOCTIIP build Alternatives.

The destruction of fossils and geologic rock units produces a cumulative impact because these non-renewable records of ancient life become permanently unavailable. In assessing cumulative impacts, it is the quantity of native rock and fossils already made unavailable for study in Orange County due to existing development that must be considered in addition to the cumulative projects planned for the future.

There is a cumulative adverse impact on paleontological resources as a result of the SOCTIIP and other projects. However, with the implementation of mitigation measures, these impacts are substantially mitigated. Therefore, the SOCTIIP build Alternatives would not contribute appreciably to a cumulative adverse impact related to paleontological resources.

Build out of the MPAH and the land uses assumed under the No Action Alternatives could result in adverse impacts on paleontological resources which would be expected to be substantially mitigated. Because the No Action Alternatives do not propose any SOCTIIP improvements, these Alternatives would not have any cumulative impacts on paleontological resources.

5.3.21 CUMULATIVE IMPACTS RELATED TO PUBLIC SERVICES AND UTILITIES

5.3.21.1 Cumulative Impacts Related to Public Services

As described earlier in Section 4.24 (Affected Environment, Impacts and Mitigation Measures Related to Public Services and Utilities), the SOCTIIP build Alternatives would result in short and long term adverse impacts related to public services during construction and operation. The cumulative public services impacts that would result from implementation of the SOCTIIP build Alternatives in conjunction with the other projects in the area are described below. The study area for cumulative public services and utilities impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east into Camp Pendleton, as shown on Figure 5.1-1. The cumulative development trends described in

Section 5.1.3 along with recent past, present and future projects listed in Tables 5.1-1 to 5.1-5 were assessed for their potential to adversely impact public services and utilities in the study area.

Fire Protection and Emergency Medical Services

All the SOCTIIP build Alternatives, except the I-5 Alternative, would have short and long term adverse impacts related to increased risk of wildfires. This risk is also identified for other projects in the area, as shown in Table 5.3-13. The mitigation measures provided for the SOCTIIP build Alternatives and the other projects in the area considerably reduce this wildfire risk. Therefore, these projects would not result in cumulative short or long term adverse impacts related to wildfires.

The CC and I-5 Alternatives would increase fire and emergency medical service response times during construction and operations due to changes in access in the study area. As shown in Table 5.3-14, the impacts of other projects in the SOCTIIP study area associated with fire and emergency medical service are generally related to increased service demand as a result of increased population and employment. The mitigation measures provided for the SOCTIIP build Alternatives and the mitigation measures for these other projects considerably reduce these adverse impacts. Therefore, the SOCTIIP build Alternatives, when considered with these other projects, would not result in cumulative short or long term adverse impacts related to fire and emergency medical service.

Build out of the MPAH assumed under the No Action Alternatives may result in some improvement to emergency service provider response times. However, build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to emergency services providers' emergency response times and service levels. Because the No Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements, they will not contribute to cumulative adverse impacts related to emergency services as a result of the SOCTIIP.

Law Enforcement

The CC and I-5 Alternatives would increase law enforcement response times during construction and operations due to changes in access in the study area. As shown in Table 5.3-13, the impacts of other projects in the SOCTIIP study area associated with law enforcement are generally related to increased service demand. The mitigation measures provided for the SOCTIIP build Alternatives and the mitigation measures for these other projects considerably reduce these adverse impacts. Therefore, the SOCTIIP build Alternatives, when considered with these other projects, would not result in cumulative short or long term adverse impacts related to law enforcement service.

Build out of the MPAH assumed under the No Action Alternatives may result in some improvement to law enforcement provider response times. However, build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to law enforcement services providers' emergency response times and service levels. Because the No

Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements, they will not contribute to cumulative adverse impacts related to law enforcement emergency services as a result of the SOCTIIP.

Solid Waste Disposal Services

The CC, CC-ALPV, A7C-ALPV and AIO Alternatives would result in loss of capacity and shortened life span at the Prima Deshecha Sanitary Landfill because these alignments cross the Landfill site. In addition, all the SOCTIIP build alternatives will result in the disposal of waste materials that are anticipated to be disposed of at this Landfill. It is possible that some waste may be disposed of at other landfills in southern California. These impacts would be adverse, and considered with the waste disposal needs of the other cumulative projects in the area listed in Table 5.3-13, would result in adverse long term cumulative impacts on solid waste disposal. The A7C-ALPV would have the greatest impact on capacity and lifespan of the Prima Deshecha Landfill, reducing the lifespan by 4.9 years, whereas, the CC and CC-ALPV Alternatives would reduce the lifespan by 1.9 year. The AIO Alternative would reduce the lifespan by 0.1 year.

Build out of the MPAH assumed under the No Action Alternatives may result in a minor increase in waste collected along area roads. Build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to solid waste disposal based on new land uses in the area. Because the No Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements, they will not contribute to cumulative adverse impacts related to solid waste disposal as a result of the SOCTIIP.

Schools

As discussed earlier Section 4.24, the CC, AIO and I-5 Alternatives all result in adverse impacts on schools, particularly the permanent acquisition of property currently used by these schools for sports fields and, in a few cases, for school buildings. The CC-ALPV and A7C-ALPV Alternatives result in the temporary loss of use only of school property. As shown in Table 5.3-13, the impacts of other projects in the study area associated with schools are generally related to increased service demand and the resulting need for additional schools. However, mitigation measures have been provided for these projects to reduce the impacts of these alternatives on school facilities. The mitigation measures provided for the SOCTIIP build Alternatives that result in school impacts would not fully mitigate the adverse impacts of these alternatives on school facilities. While the loss of these school facilities and buildings under the SOCTIIP build Alternatives would contribute to an adverse impact related to schools, it is not known whether they may result in a cumulative impact to public service facilities.. The I-5 Alternative would have the greatest impact on schools, as it would affect six school properties, while the CC and AIO Alternatives each impact one school property.

Build out of the MPAH assumed under the No Action Alternatives would not be expected to result in adverse impacts on schools unless schools are located adjacent to the improved roads. Build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to increased demand for schools as a result of new residential uses in the area. Because the No Action Alternatives do not include construction or implementation of any SOCTIIP

infrastructure improvements, they will not contribute to cumulative adverse impacts related to schools in the study area as a result of the SOCTIIP.

Public Services Facilities

As discussed earlier in Section 4.24, the CC and I-5 Alternatives would result in adverse impacts on the San Clemente Post Office. The I-5 Alternative would adversely impact the Lake Forest City Hall, Laguna Hills City Hall and Buccheim Fields. The mitigation for the impacts of the SOCTIIP Alternatives on public facilities is anticipated to fully mitigate the adverse impacts on these facilities with the exception of the Buccheim Fields. This type of impact has not been identified for the other projects in the study area. Therefore, these Alternatives would not contribute to an adverse cumulative impact related to public services.

Build out of the MPAH assumed under the No Action Alternatives could result in adverse impacts on public facilities if those facilities are located adjacent to the improved roads. Build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to increased demand for public services which could result in the need for expanded public services facilities in the study area. Because the No Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements, they will not contribute to cumulative adverse impacts related to public facilities in the study area as a result of the SOCTIIP.

5.3.21.2 Potential for Cumulative Impacts Related To Utilities

As described earlier in 4.24, the SOCTIIP build Alternatives would require the protection in place or relocation of utilities within the disturbance limits. Therefore, no long term impacts to utilities are anticipated under the SOCTIIP build Alternatives. This activity could potentially damage utilities or cause a temporary interruption in service. This same type of impact has been identified for the other projects listed on Table 5.3-13. The mitigation measures provided for the SOCTIIP Alternatives and these other projects reduce the potential for this adverse impact to occur. Therefore, the SOCTIIP build Alternatives, when considered with these other projects, would not result in a cumulative short term adverse impact related to utilities.

Build out of the MPAH assumed under the No Action Alternatives could result in adverse impacts on utilities related to the need to relocate or modify utilities in the rights-of-way for the road improvements. Build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to increased demand for public utilities which could result in the need for expanded public utilities facilities and service levels in the study area. Because the No Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements, they will not contribute to cumulative adverse impacts related to public utilities in the study area as a result of the SOCTIIP.

5.3.22 CUMULATIVE IMPACTS RELATED TO RECREATION RESOURCES

5.3.22.1 Overview

Construction of any of the SOCTIIP build Alternatives would result in the direct and indirect effects of that SOCTIIP Alternative as well as the cumulative effects of the SOCTIIP project

combined with other related past, present and reasonably foreseeable future actions. This analysis considers both direct (property acquisition) and indirect (noise, traffic, visual and air quality) impacts on recreation resources associated with the SOCTIIP alternatives. As discussed in Section 4.25 (Affected Environment, Impacts and Mitigation Measures Related to Recreation Resources), residential uses and, to a lesser degree, commercial uses are associated with demand for recreation resources. In general, transportation projects do not generate demand for recreation uses because highways and roads do not have residents or employees associated with the specific road project. Because partial or full acquisition of some recreation resources would be required for the SOCTIIP build Alternatives, some recreation facilities or amenities in the SOCTIIP study area may not be available for use in the future, either temporarily during construction and/or in the long term during operation. A reduction in these resources would shift demand to other local or regional facilities and could contribute to a cumulative increase in demand for recreation resources. Generally, the previous development trends do not result in cumulative impacts to recreation resources, since the rural to urban conversion does not necessarily limit recreational opportunities.

Recreation resources in the SOCTIIP study area serve local, regional and state demand for outdoor recreation. Many of these resources have special features or amenities such as beaches/beach access, water features, natural areas or sports amenities and, as a result, it may be difficult finding comparable land to replace them, especially in urbanized areas. Therefore, impacts to recreation resources that cannot be mitigated on site are not only considered adverse but may also be considered adverse on a cumulative basis.

To ensure that adequate recreation resources are maintained for residents, local jurisdictions have adopted park standards and design guidelines for new residential developments. In addition, local jurisdictions are required to meet the intent of the Quimby Act which requires the provision of local parks or fees paid for local parks by developers. Jurisdictions in the SOCTIIP study area have implemented their General Plan Open Space and Recreation Elements as part of ongoing development. The demand for recreation resources is anticipated to increase in this part of Orange County, associated with approved and planned residential developments such as the approved Talega and Ladera developments and the planned Rancho Mission Viejo (RMV) development. The Talega and Ladera projects include recreation and open space uses intended to meet the recreation needs of their residents. It is anticipated that the RMV development will also include recreation resources for its residents.

In addition, planned regional and special use recreation facilities, such as the Prima Deshecha Regional Park and golf courses, will meet recreation needs for residents in the SOCTIIP study area. Additional planned facilities include a 486 ha (1,200 ac) regional park, other open space and trails associated with the development on the RMV property (RMV Development Planning Application, November 2001). In general, the approved and planned developments in the SOCTIIP study area are or will be required to meet defined requirements for open space, trails and parks as part of the development planning process pursuant to the County of Orange and other local jurisdictions' General Plan policies. Therefore, the SOCTIIP Alternatives and the planned developments in the area either do not generate new recreation demand or are anticipated to meet existing and future recreation needs based on recreation resources included in the planned developments or in the study area. If a proposed development is adjacent to a

proposed regional park or trail, it will be required to provide some level of improvement or means to implement the proposed regional resource.

The study area for cumulative recreation resources impacts is the same as the study area defined for land use, extending from the I-5/I-405 interchange south along I-5 and then extending east into Camp Pendleton, as shown on Figure 5.1-1. The cumulative projects in Tables 5.1-1 to 5.1-5 were assessed for their potential to adversely impact recreation resources in the study area.

Table 5.3-14 lists the cumulative projects in the SOCTIIP study area, the potential impacts of those projects related to recreation resources and mitigation measures incorporated in those projects to avoid or substantially reduce identified adverse impacts. Many of the mitigation measures in 5.3-14 refer to plans, dedication or in lieu fee payment for the provision of local parks to meet needs generated by planned residential developments. This analysis does not quantify whether or not the existing and planned recreation resources within each jurisdiction will meet that jurisdiction's future recreation needs or requirements. Each jurisdiction decides and manages its own public park provision and plans and it is at the discretion of the individual jurisdiction as to how to fulfill its recreation needs. For example, the planning and environmental analyses for a specific project may indicate that a certain size park facility is needed to meet that development's needs for recreation resources or to avoid impacts of that development on existing recreation facilities. The local jurisdiction may require the proposed development to dedicate land for recreation resources or may accept in lieu fees and use those fees for improvements to an existing or planned facility.

5.3.22.2 Potential for Cumulative Impacts Related To Recreation Resources

As described earlier in Section 4.25, the SOCTIIP build Alternatives could result in both short term adverse impacts on recreation resources during construction and long term adverse impacts related to direct and indirect impacts on recreation resources. Although short term impacts are of concern, these can frequently be substantially mitigated and are not considered permanent and likely would not contribute to cumulative impacts. Long term impacts may contribute to cumulative impacts related to recreation resources, especially those impacts that cannot be mitigated and that result in either a net loss in recreation resources or substantial permanent degradation of resources or amenities at those resource sites.

As discussed previously, because the SOCTIIP build Alternatives do not entail the development of residential or commercial uses, they will not result in impacts related to increased demand for recreation resources. The SOCTIIP build Alternatives would contribute to cumulative impacts related to recreation resources in the study area as a result of direct impacts and/or indirect impacts such as noise, air quality and visual impacts.

The SOCTIIP build Alternatives will directly affect a number of recreation resources in the SOCTIIP study area. The impacted resources are SOSB Subunits 1 and 2, the sports fields at San Clemente High School and Ole Hanson Elementary School, Donna O'Neill Land Conservancy, proposed Prima Deshecha Regional Park, Talega Golf Course and three proposed Regional Riding and Hiking Trails: the San Juan Creek trail extension, the Cristianitos trail and the Prima Deshecha trail.

The potential for the SOCTIIP Alternatives to contribute to cumulative impacts on recreation resources was assessed based on:

- How much of the existing and planned resources are directly affected by the SOCTIIP Alternatives, in terms of area and/or amenities removed as a result of the alternative.

- The extent to which existing and planned recreational opportunities would be removed from the SOCTIIP study area.

Impacts to neighborhood and community recreation resources are considered cumulatively adverse. Although they serve a limited area and do not generally include special amenities, their loss is considered adverse and cumulative as it exerts pressure on other facilities to absorb the demand that can't be met by reduced facilities. Although the demand for many of these local recreation resources can probably be met with existing facilities elsewhere in the jurisdiction, there remains an adverse cumulative impact. Regional or state recreation resources are considered to be more affected by direct impacts due to the uniqueness of those facilities or the amenities provided at these resources, including beaches, hiking trails, scenic vistas, native plants and animals, and the larger service areas for these resources.

Buildout of the MPAH assumed under the No Action Alternatives could result in adverse impacts on recreation resources, either directly by using land from recreation facilities for the road improvement or indirectly as a result of noise, air quality and visual impacts on recreation facilities in the vicinity of the improved roads. Build out of the land uses assumed in the No Action Alternatives could result in adverse impacts related to increased demand for recreation facilities and the need for new or expanded recreation facilities. In addition, these assumed land uses could result in indirect impacts on recreation resources as a result of noise, air quality and visual impacts on recreation facilities in the vicinity of these land uses. Because the No Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements, they will not contribute to cumulative adverse impacts related to recreation resources in the study area as a result of the SOCTIIP.

The major recreation facilities in the SOCTIIP study area which are affected by the SOCTIIP build Alternatives are discussed below. This discussion focuses on the cumulative direct impacts of the SOCTIIP Alternatives on these resources and the potential impairment of the resources as a result of the alternatives.

5.3.22.3 San Onofre State Beach: Subunits 1 and 2

San Onofre State Beach (SOSB) is a state resource which provides park, beach and camping amenities for a population beyond the immediate region. The property, consisting of four subunits (only three of the four SOSB Subunits will potentially be impacted by the SOCTIIP build Alternatives; SOSB Bluffs Subunit 4 is outside of the study area and would not be impacted by the Alternatives), is leased from MCB Camp Pendleton under a 50-year lease agreement expiring September 1, 2021. As a super-regional resource, this park covers a service area beyond southern California. The FEC-W, FEC-M and A7C-FEC-M Alternatives will divide

Subunit 1 as they cross this part of the Park, and will impact 135 ha (334 ac) under the Initial and 144 ha (357 ac) under the Ultimate at this Park. It is not anticipated that these impacts can be fully mitigated on site. Therefore, the impacts of these SOCTIIP build Alternatives would reduce the amount of state park land available for recreation uses. Many of the other cumulative projects in the SOCTIIP study area will provide recreation resources although these tend to be at the community and regional level and would not provide the types of resources that would be impacted by these SOCTIIP build Alternatives at SOSB Subunits 1 and 2. Therefore, the FEC-W, FEC-M and A7C-FEC-M Alternatives would result in a net loss of state park resources which would be considered an adverse impact on SOSB Subunits 1 and 2.

5.3.22.4 San Clemente High School and Ole Hanson Elementary School

The sports fields associated with San Clemente High School and Ole Hanson Elementary School would be impacted by the CC Alternative. These SOCTIIP Alternatives would impact 1.7 ha (4.3 ac) of the outdoor use areas associated with these schools. There does not appear to be any areas in proximity to these schools to replace these fields. This is considered an adverse impact of these SOCTIIP build Alternatives related to both recreation resources and public services. From a public recreation resources perspective although public access to these school-based resources is relatively limited and there are other recreation resources available in the vicinity, the loss would exert pressure on the facilities resulting in an adverse cumulative impact. The impacts of these SOCTIIP build Alternatives on school based recreation resources would contribute to an adverse cumulative impact related to recreation resources.

5.3.22.5 Donna O'Neill Land Conservancy

The FEC-W, FEC-M and A7C-FEC-M Alternatives cross part of the Donna O'Neill Land Conservancy. Although these impacts are considered adverse on a project level, public access to the Donna O'Neill Land Conservancy is limited to appointment only and is not for the purpose of traditional recreation use. This resource is not a traditional recreation resource in that its primary purpose is the protection of native plant and animal species and access is largely limited to scientific and conservation purposes. The Donna O'Neill Land Conservancy does not serve as an active recreation resource and does not meet specific programmed County of Orange demands for active and passive recreation resources in the County. Therefore, the loss of part of the Donna O'Neill Land Conservancy under these SOCTIIP build Alternatives would not contribute to a cumulative adverse impact on recreation resources in south Orange County.

5.3.22.6 Proposed Prima Deshecha Regional Park

Four SOCTIIP build Alternatives (CC, CC-ALPV, A7C-ALPV and AIO) cross the site for the proposed Prima Deshecha Regional Park at the Prima Deshecha Sanitary Landfill. This proposed regional park is planned to be phased in after landfilling is terminated after the closure of landfilling operations in approximately 2067. According to Draft EIR 575 for the 2001 Prima Deshecha General Development Plan (GDP) "...[park] activities would be determined through a needs analysis and a park plan undertaken near the time of closure." At this time, it is speculative to assess exactly how the SOCTIIP build Alternatives might affect this proposed

park. Because a preferred alternative would be selected several years before 2067, there is no reason to believe that an active park could not be planned and implemented.

The A7C-ALPV Alternative divides the area where the proposed park is planned which could affect how recreation uses are planned on the site.

The AIO Alternative proposes only minor widening of La Pata Avenue which currently is aligned through the middle of the Prima Deshecha Sanitary Landfill site. Therefore, expansion by only one lane of this existing road would not substantially affect future park plans.

The CC and CC-ALPV Alternatives generally follow the La Pata Avenue alignment through the Landfill site. However, it would result in greater impacts in this area, because of the wider cross section, with these impacts occurring in the area already occupied by La Pata Avenue.

Because this is a recreation resource which is not yet planned in detail and which will not be available to the public for a number of years, it is not possible to assess what impacts the SOCTIIP Alternatives might have on this future recreation use. At a minimum, the acquisition of Landfill property for these SOCTIIP build Alternatives could result in a reduction of land available for this future regional park although the GDP does acknowledge a future road through this part of this future park. Because sites for regional parks are limited, this would be an adverse impact. However, it is anticipated that a planned regional park could accommodate these impacts in its design and, as noted, the GDP acknowledges this future road. In addition, there are other regional parks in south Orange County including the proposed 486 ha (1,200 ac) regional park proposed as part of the RMV development. The long term commitment of planned parkland for a non-park purpose would be considered adverse. Without sufficient detail about this planned park, it is not possible to determine the type of recreational activities that would be impacted. The SOCTIIP build Alternatives do not preclude the use of this site as a future regional park. The SOCTIIP build Alternatives would not contribute to cumulative adverse impacts to the planned Prima Deshecha Regional Park in South Orange County because the GDP acknowledges a future road for this park.

5.3.22.7 Talega Golf Course

The Talega Golf Course is directly impacted by the A7C-ALPV Alternative which would cross through the middle of the course. Golf courses are considered special use recreation resources. Impacts to this golf course would not be cumulatively adverse, because no other project would impact this use.

5.3.22.8 Proposed Regional Riding and Hiking Trails

Three proposed regional trails will be impacted by some of the SOCTIIP Alternatives. These trails would be crossed by the alignments of the SOCTIIP build Alternatives. Section 4.25 includes mitigation measures to provide for trail crossings across the SOCTIIP alignments.

The proposed San Juan Creek Trail extension, the Cristianitos Trail and the Prima Deshecha Trail are regional riding and hiking trails shown in the County of Orange Master Plan of

Regional Riding and Hiking Trails and in the County of Orange General Plan. Because these trails are proposed and no specific alignments have been identified for these trails, it is not possible to identify site specific impacts of the SOCTIIP alignments on these trails. However, any permanent impacts which would divide a trail and create a barrier towards continuous travel on the trail would be an adverse impact. Because the trail system has been affected in the past by other uses which affect the continuity of the trail system, impacts of the SOCTIIP Alternatives would be considered to contribute to a cumulative adverse impact on trail continuity in south Orange County. As discussed earlier in Section 4.25, accommodation for trail crossings is included in the mitigation for SOCTIIP build Alternatives. Pending the verification of effective trail crossings, the SOCTIIP build Alternatives will include provisions to accommodate the trails and not result in cumulative adverse recreation impacts.

5.3.22.9 Summary of Potential Cumulative Impact on Recreation Resources

The following discussion highlights the conclusions related to cumulative impacts for recreation as a consequence of the implementation of the SOCTIIP Alternatives.

The underlying premise for these conclusions is that transportation projects do not generate demand for recreation uses. In addition, local jurisdictions are responsible for ensuring recreation needs are met for land use approvals, at least in part as a result of local provisions for parks or fees paid for by the development community.

Impacts to neighborhood and community recreation resources are considered cumulatively adverse as the loss or displacement would exert pressure on other facilities to offset the displaced amenity and/or have some impact on the planned recreational program in the community. However, there are no SOCTIIP Alternatives that directly impact an existing community or neighborhood park.

Impacts to state parks, including the SOSB, are considered cumulatively adverse. State parks, such as at SOSB, are regional, unique recreational opportunities, particularly in the case of SOSB which includes native plant communities and wildlife habitat, beaches and riparian water features which provide opportunities for passive activities such as bird watching and viewing blooming plants. Six SOCTIIP Alternatives would reduce the amount of land available for recreation uses at San Onofre State Park. The FEC-W, FEC-M and A7C-FEC-M Alternatives essentially subdivide Subunit 1 in the State Park, and displaces part of the Park acreage in the north, or northeastern parts of the Park. Therefore, these SOCTIIP Alternatives will contribute to adverse cumulative impacts on recreation resources.

Impacts to sports fields at local schools are identified at San Clemente High School and Hanson Elementary School as a result of the CC and CC-ALPV Alternatives and at proposed San Juan Hills High School Sports Fields as a result of the AIO Alternative. This loss would exert pressure on other institutions in the area to replace or compensate for the lost recreational opportunities. The impacts of these SOCTIIP build Alternatives on school-based recreation resources will contribute to an adverse cumulative impact.

The FEC-W, FEC-M and A7C-FEC-M Alternatives all cross the Donna O'Neill Land Conservancy property. The Donna O'Neill Land Conservancy does not serve as a public recreation resource and is largely limited to ecological study and conservation purposes. Because of this intended limited use of the Donna O'Neill Land Conservancy, these SOCTIIP build Alternatives would not contribute to cumulative adverse impacts on this recreation resource.

The CC, CC-ALPV, A7C-ALPV and AIO Alternatives cross the proposed Prima Deshecha Regional Park. Recreational components for this proposed project are not planned at present and precise impacts cannot be fully identified. However, depending on the alternative, the SOCTIIP build Alternatives will have either a direct impact or will have some incremental impact on the net acreage of recreational activity available at this proposed park. Although the park uses may not be fully developed for more than 60 years, the location of the SOCTIIP Alternative will either reduce planning flexibility or result in a direct take of acreage. However, because the GDP for the future park acknowledges a future road through this park, the impacts are not considered cumulatively adverse.

The A7C-ALPV Alternative crosses Talega Golf Course. This facility is open to the general public. The impacts of these SOCTIIP Alternatives are expected to result in adverse impacts on this golf course, but it will not result in cumulative impacts because no other projects would impact this or other golf courses in the study area.

The proposed San Juan Creek Trail extension, Cristianitos Trail and the Prima Deshecha Trail are regional riding and hiking trails and will be crossed by various SOCTIIP Alternatives. Because the trail system has been affected in the past by other uses which affect the continuity of the trail system, impacts of the SOCTIIP Alternatives would be considered to contribute to adverse cumulative impacts on recreation resources. Pending the verification of effective trail crossings, the SOCTIIP Alternatives will include provisions to accommodate the trails and not result in cumulative adverse recreation impacts.

The No Action Alternatives do not include construction or implementation of any SOCTIIP infrastructure improvements. Therefore, they will not contribute to cumulative adverse impacts related to recreation resources in the study area as a result of the SOCTIIP.

5.4 SUMMARY OF POTENTIAL CUMULATIVE IMPACTS

Table 5.4-1 briefly describes the existing conditions and trends related to a number of environmental parameters. Table 5.4-1 also summarizes the potential impacts of the SOCTIIP Alternatives and other cumulative projects and the identified mitigation for each environmental parameter. As shown, the SOCTIIP and other cumulative projects may result in cumulative adverse impacts related to the conversion of agricultural land, cultural resources, visual resources, military resources, mineral resources, paleontological resources, landfill capacity and recreation resources. Mitigation to avoid or substantially reduce these adverse impacts of the SOCTIIP Alternatives is identified in detail in Section 4.0.

Figure 5.1-1

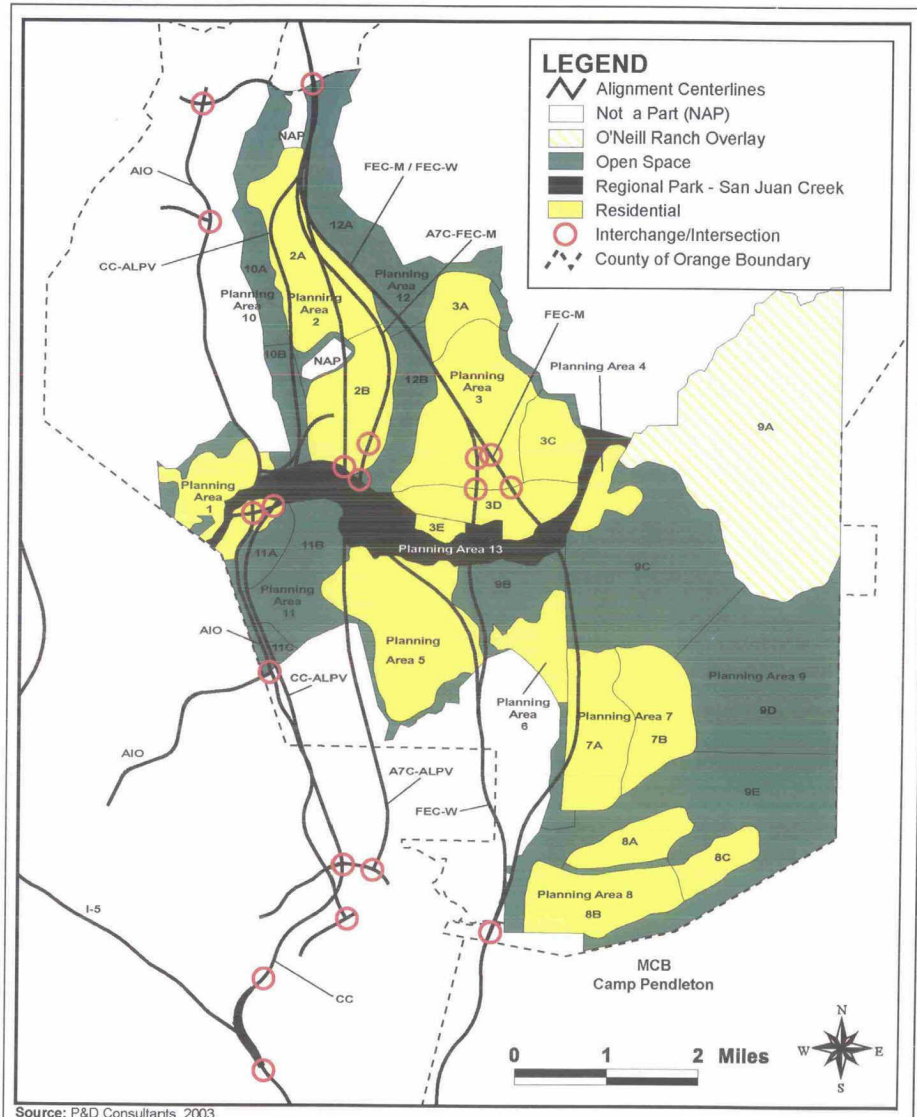
Cumulative Projects

Source: P&D Consultants, Psomas (2003).

SOCTIIP Alternatives in Relation to RMV Reserve Alternative B-4

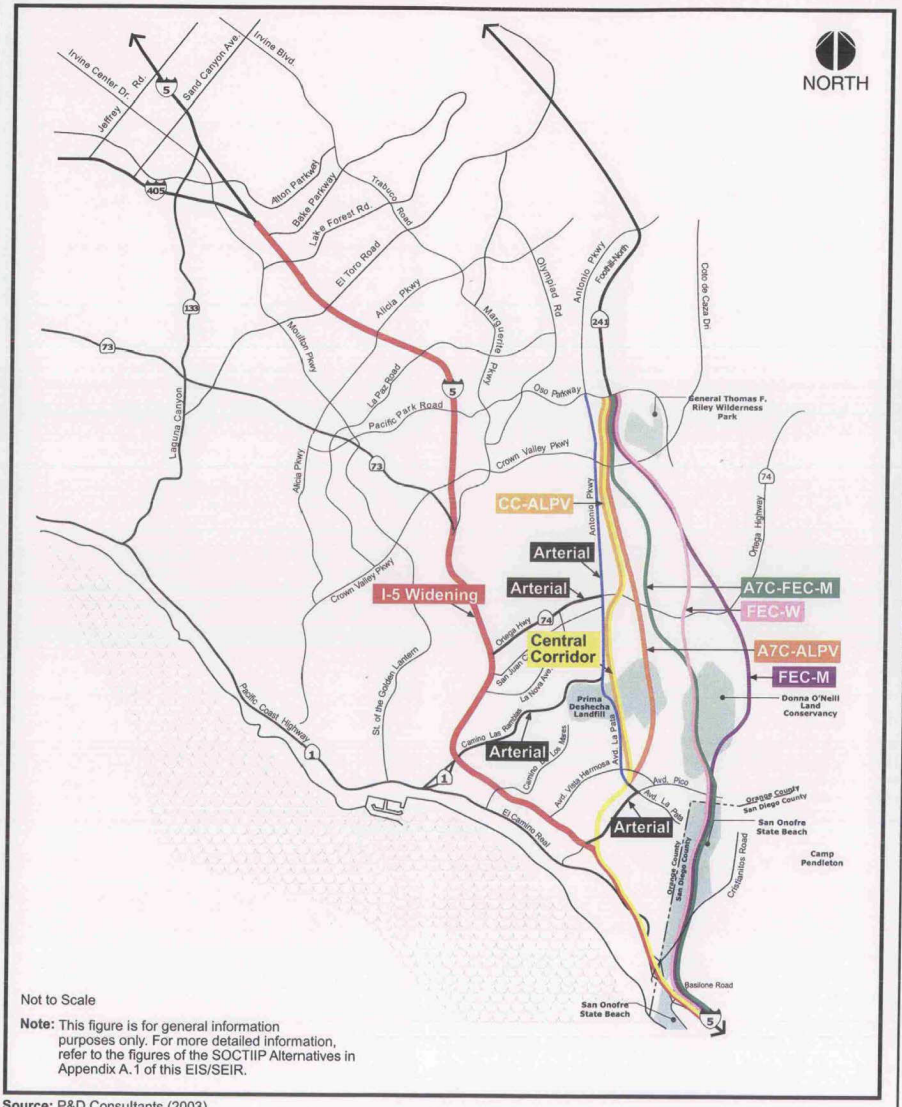
Source: P&D Consultants, Psomas (2003).

SOCTIIP Alternatives in Relation to RMV Reserve Alternative B-8



Source: P&D Consultants, 2003.

Rancho Mission Viejo Proposed Development

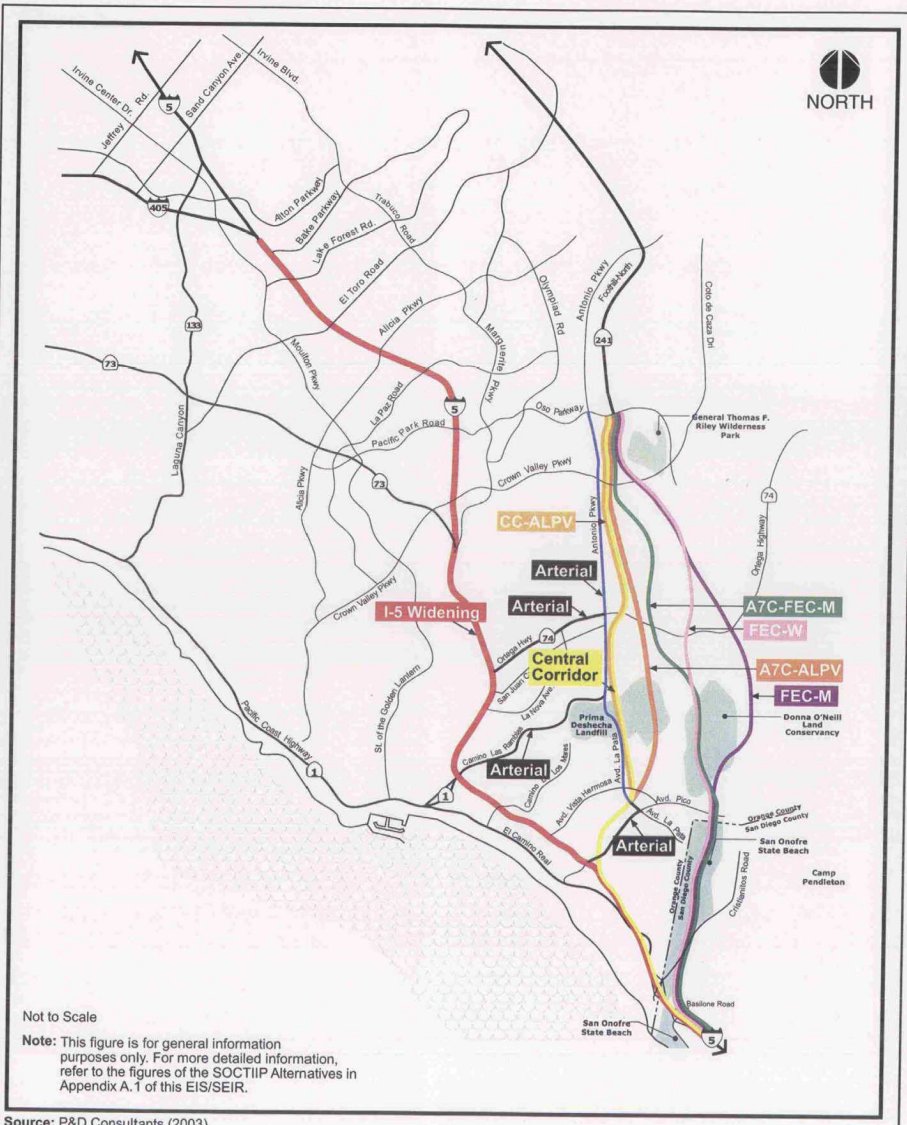


Not to Scale

Note: This figure is for general information purposes only. For more detailed information, refer to the figures of the SOCTIIP Alternatives in Appendix A.1 of this EIS/SEIR.

Source: P&D Consultants (2003).

Alignments of the Build Alternatives



Source: P&D Consultants (2003).

Alignments of the Build Alternatives

TABLE 5.1-2
OTHER CUMULATIVE LAND USE PROJECTS

Development	Quantity	Units
South Coast Water District Business Park		
Office	83.1	TSF
Research and Development	164.221	TSF
Research and Development-Multi-Use Tenant	275.734	TSF
Storage	142.758	TSF
CITY OF SAN CLEMENTE		
Plaza Pacifica Commercial Site (Rancho San Clemente)	460	TSF
Avenida Vista Hermosa Interchange	n/a	
Talega Subdivisions 134.6 gross ha (269.1 gross acres)		
TT 16148 Area B-1A Village 3		
Single Family	245	du
Multiple Family	2	Lots
TT 16216 Area B-1B "Z" Lot - Single Family	91	du
TT 16215 Area B-1B Triplex - Multiple Family	144	du
TT 16252 Area A-2 Hammerhead - Single Family	76	du
MCB CAMP PENDLETON		
San Mateo Point Housing	120	du
Expansion of existing SDG&E Substation	Minor	--
Amtrak/Caltrans EIS underway for second mainline track.	Unknown	--
Home Base (31a) and Vehicle Primary Training Area (31b)	Introduction of a tracked vehicle in training exercises; based in 62 Area northwest of the agricultural lease area; potential for training in that lease area.	--

Sources:
1. Draft Program Environmental Impact Report" (Orange County IWMD, January 31, 2001). This project was rejected by the voters in 2002.
2. Updated with information from the Home Depot Project Draft EIR (September 20, 2001).
3. Updated with information from City of San Clemente City Council Agendas from 2002.
4. L. Rannals, Camp Pendleton (2002 and 2003).

TSF: Thousand square feet
du: Dwelling Units

Notes:

[1] This project was voted down in an advisory vote in the City of San Juan Capistrano. Project status is pending City Council action.

TABLE 5.1-3
COMMITTED MASTER PLAN OF ARTERIAL HIGHWAYS/REGIONAL TRANSPORTATION PLAN FACILITIES AND IMPROVEMENTS

Facility	Jurisdiction	Improvement	Source
Alipaz St (north of Cm Del Avion)	San Juan Capistrano	Widen to four lanes	8
Antonio Pkwy (Oso Pkwy to southern boundary of Ladera Ranch)	County	Widen to six lanes	1
Avd La Pata (Avd Pico to Avd Vista Hermosa)	San Clemente	Construct as a six-lane major arterial	2
Avd Talega (east of Avd Vista Hermosa)	San Clemente	Extend as a four-lane secondary arterial	3
Avd Vista Hermosa (Cm Vera Cruz to north of Avd La Pata)	San Clemente	Construct as a four-lane primary arterial	2
Avd Vista Hermosa (Calle Frontera to I-5)	Caltrans/San Clemente	Construct as a four-lane primary arterial with an interchange at I-5	4
Cm Capistrano (south of Oso Rd to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes	8
Cm Capistrano (south of San Juan Creek Rd)	San Juan Capistrano	Widen to four lanes	8
Cm Vera Cruz (west of Avd Vista Hermosa)	San Clemente	Construct as a four-lane secondary arterial	2
Crown Valley Pkwy (I-5 to east of Trabuco Creek bridge)	County/Mission Viejo	Widen to eight lanes	5
Del Obispo St (Aguacate Rd to Paseo De La Paz)	San Juan Capistrano	Widen to four lanes	8
I-5 (Oso Pkwy to Crown Valley Pkwy)	Caltrans	Construct northbound auxiliary lane	6
Junipero Serra Rd (Cm Capistrano to Rancho Viejo Rd)	San Juan Capistrano	Widen to four lanes	8
Ortega Hwy (Via Cordova to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes	7,8
Ortega Hwy (San Juan Capistrano city limits to Antonio Pkwy)	County	Widen to four lanes	6,7
Rancho Viejo Rd (south of Junipero Serra Rd)	San Juan Capistrano	Widen to four lanes	8

TABLE 5.1-3
COMMITTED MASTER PLAN OF ARTERIAL HIGHWAYS/REGIONAL TRANSPORTATION PLAN FACILITIES AND IMPROVEMENTS

Facility	Jurisdiction	Improvement	Source
SR-73 (north of I-5)	TCA/Caltrans	Widen to provide four general purpose lanes in each direction and one high occupancy vehicle (HOV) lane in each direction	9
SR-241 (Oso Pkwy to Santa Margarita Pkwy)	TCA/Caltrans	Widen to provide three general purpose lanes in each direction and one HOV lane in each direction	9
SR-241 (north of Santa Margarita Pkwy)	TCA/Caltrans	Widen to provide four general purpose lanes in each direction and one HOV lane in each direction	9

Sources: 1 – Conditioned for implementation with development of Ladera Ranch.
2 – Implemented through the City of San Clemente Regional Circulation Financing and Phasing Program (RCFPP).
3 – Conditioned for implementation with development of Talega.
4 – Improvement under construction by Caltrans and the City of San Clemente.
5 – Conditioned for implementation with development of Las Flores.
6 – Caltrans improvement.
7 – County of Orange improvement project.
8 – Implemented through the City of San Juan Capistrano Reimbursement Agreement and Nexus Fee Program.
9 – Transportation Corridor Agencies (TCA) Capital Improvement Plan (CIP).

Source: Austin-Foust Associates (2002).

TABLE 5.1-4
NON COMMITTED MASTER PLAN OF ARTERIAL HIGHWAYS/REGIONAL TRANSPORTATION PLAN FACILITIES AND IMPROVEMENTS

Facility	Jurisdiction	Improvement	Source
Alipaz St (north of Del Obispo St to Oso Rd)	San Juan Capistrano	Construct as four-lane secondary arterial	MPAH
Antonio Pkwy (south of Ladera Ranch to Ortega Hwy/SR-74)	County	Widen to six lanes	MPAH
Avd La Pata (south of Ortega Hwy/SR-74)	County	Widen to four lanes	MPAH
Avd La Pata (south of Ortega Hwy/SR-74 to San Clemente city limits)	County	Construct as a four-lane primary arterial	MPAH
Avd La Pata (San Clemente city limits to Avd Vista Hermosa)	San Clemente	Construct as a six-lane major arterial	MPAH
Cm De Los Mares (east of Cm Del Rio to Cm Las Ramblas)	San Clemente	Construct as four-lane secondary arterial	MPAH
Cm Del Rancho (I-5 to Avd Pico)	San Clemente	Construct as a four-lane primary arterial	MPAH
Cm Las Ramblas (current termination east to Avd La Pata)	San Juan Capistrano/ San Clemente	Construct as four-lane secondary arterial	MPAH
Cm Los Padres (east of St of the Golden Lantern to Cm Capistrano)	San Juan Capistrano	Construct as four-lane primary arterial	MPAH
Crown Valley Pkwy (Antonio Pkwy to Oso Pkwy)	County	Construct as six-lane major arterial east of Antonio Pkwy and as four-lane primary arterial west of Oso Pkwy	MPAH
I-5 (Oso Pkwy to Crown Valley Pkwy)	Caltrans	Add SB auxiliary lane	CT-RCR
I-5 (Pacific Coast Hwy/SR-1 to Avd Pico)	Caltrans	Add NB and SB HOV lanes	CT-RCR /RTP
I-5 (south of Basilone Rd)	Caltrans	Add NB and SB HOV lanes	Caltrans/ SANDAG
La Novia St (north of San Juan Creek Rd)	San Juan Capistrano	Widen to four lanes	MPAH
Marguerite Pkwy (Avery Pkwy to Mission Viejo city limits)	Mission Viejo	Widen to four lanes	MPAH

TABLE 5.1-4
NON COMMITTED MASTER PLAN OF ARTERIAL HIGHWAYS/REGIONAL TRANSPORTATION PLAN FACILITIES AND IMPROVEMENTS

Facility	Jurisdiction	Improvement	Source
Olympiad Rd (Alicia Pkwy to La Paz Rd)	Mission Viejo	Widen to four lanes	MPAH
Ortega Hwy/SR-74 (east of Antonio Pkwy/Avd La Pata to Orange County line)	County	Widen to four lanes	MPAH
Oso Rd (Alipaz St to Cm Capistrano)	San Juan Capistrano	Widen to four lanes	MPAH
Pacific Coast Hwy/SR-1 (north of Doheny Park Rd to Selva Rd)	Dana Point	Widen to six lanes	MPAH
Rancho Viejo Rd (north of Junipero Serra Rd to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes	MPAH
San Juan Creek Rd (Cm Capistrano to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes	MPAH
San Juan Creek Rd (San Juan Capistrano city limits to Avd La Pata)	San Juan Capistrano	Construct as four-lane secondary arterial	MPAH
Crown Valley Parkway interchange at Foothill Transportation Corridor-South [1]	County	Add future interchange.	MPAH

Abbreviations: MPAH – Master Plan of Arterial Highways
RTP – Regional Transportation Plan
CT-RCR – Caltrans Route Concept Report
SANDAG – San Diego Association of Governments
TCA – Transportation Corridor Agencies
HOV – high occupancy vehicle
NB – northbound
SB – southbound

Source: Austin-Foust Associates (2002).

1. This interchange is not proposed as part of the FTC-S by the TCA and is considered to be part of the future build out of the MPAH. The potential future interchange of the FTC-S with Crown Valley Parkway is a possible interchange that could be incorporated into a corridor alternative. The potential extension of the FTC-S as a SOCTIIP alternative will not automatically trigger the future interchange, and the TCA is not including the interchange as part of the corridor project that they propose to build. The SOCTIIP can exist indefinitely without the Crown Valley Parkway interchange. The SOCTIIP and the future interchange are not interdependent parts of a larger action and do not depend on a larger action for their justification. The potential Crown Valley interchange is <u>not</u> a connected action as defined by the CEQ NEPA Regulations (40 C.F.R. Section 1508.25(a)(1) and therefore, is not a federal action and does not require any federal funding or approval. Therefore, it is not included in the Alternatives evaluated in the EIS/SEIR but is included as a possible cumulative project.

TABLE 5.1-5
SUMMARY OF CALTRANS IMPROVEMENTS

CALTRANS INTERSTATE 5 IMPROVEMENTS		
Description of Project	**Status of Project**	**Environmental Compliance**
I-5/SR 74 Interchange Project This project in the PSR stage. Several alternatives have been proposed by the consultants (Parson) that will improve operations in the 5/74 interchange area. The ramps will be reconfigured concurrently with the realignment of Del Obispo. A roundabout at the intersection of Del Obispo and the 74 has also been proposed. The SOCTIIP proposal incorporates one of the original alternatives that was proposed by Parsons (cloverleaf ramp layout). This will probably not be selected. The are also proposing to add an off ramp at Camino Capistrano at Stonehill to divert some of the southbound traffic to Dana Point away from the 5/74 area. The proposed SOCTIIP project will realign I-5 at this location.	PSR in progress Environmental document will be prepared by the City of San Juan Capistrano which is the lead agency.	To be determined.
Avenida Pico (0E740K) • Widening SB off-ramp to 2 lanes and aux. lane. ($2 million) • Widen Pico and n/b off ramp.	PSR completed. Anticipated environmental document would be a CE/CE.	To be prepared.
I-5 at La Paz Road (EA 0A070K) • Major construction at the interchange • Alternatives study involves widening La Paz, reconstructing bridge and realigning ramps.	PSR in progress. Environmental document is not yet determined.	To be determined.
SB I-5 El Toro Road (EA 09800K) • Propose new 3 lanes off-ramp with retaining wall.	PSR in progress. Anticipated environmental document would be an IS/EA leading to a ND/FONSI.	To be prepared.
I-5 at El Toro Road (EA 09800K) • Two new hook ramps to the Laguna Hills Mall • New Intersection	PSR in progress. Anticipated environmental document would be an IS/EA leading to a ND/FONSI.	To be prepared.
I-5 San Mateo Creek Bridge • The bridge piers will be stabilized with cast in shell piles around the footings of piers 1-4. Permanent sheet piling will be placed around pier 5. Abatements have suffered moderate to severe erosion. They'll be cleared of vegetation compacted and have RSP with filter fabric placed on the surface.	Environmental document was completed.	SE/CE was completed.

TABLE 5.1-5
SUMMARY OF CALTRANS IMPROVEMENTS

CALTRANS INTERSTATE 5 IMPROVEMENTS		
Description of Project	**Status of Project**	**Environmental Compliance**
The project did not incorporate the proposed on/off ramps on I-5 at Avenida De La Carlota, north of Los Alisos Blvd. Furthermore; there are operational concerns on the proposed reconfigured El Toro Road on/off ramps and their connectivity with Bridger Road and Avenida De La Carlota.	PSR in progress. Anticipated environmental document would be an IS/EA leading to a ND/FONSI.	To be prepared.
In San Juan Capistrano • Widening Route 5 S/B off ramp at Camino Capistrano and widen a segment of Camino Capistrano south of the I-5.	PSR completed. Anticipated environmental document would be an IS/EA probably leading to an ND/FONSI.	To be prepared.
In Laguna Hills at Alicia (0E620K) • Add auxiliary lane from Alicia SB off ramp to SB on ramp.	PSR completed. Anticipated environmental document would be an IS/EA probably leading to an ND/FONSI.	To be prepared.
In Laguna Hills SB on & off ramps; El Toro Road RM 18.7; Avenue de La Carlota, Los Alisos • Relocate SB I-5 on & off ramps; realign Frontage Road; Install signal.	PSR completed. Anticipated environmental document would be an IS/EA probably leading to an ND/FONSI.	To be prepared.
In San Juan Capistrano at Camino Capistrano on ramp. Realign ramp; extend ramp meter limits.	PSR completed. Anticipated environmental document would be an IS/EA probably leading to an ND/FONSI.	To be prepared.
At Avenida Vista Hermosa (Reeves Ranch Overcrossing.) • Construct interchange.	This project has been completed by the City of San Clemente.	CE was completed by City of San Clemente.
In Orange County in Laguna Niguel, Laguna Hills, Mission Viejo and Lake Forest • Construct HOV lanes.	Environmental document is not yet determined.	To be determined.
On Route 5 from El Toro Road to Alton Parkway and on Route 405 form Route 5 to Irvine Center Drive (ORA 405 1.2/1.0) in Lake Forest • Widen and reconstruct Freeway.	Completed.	ND was approved on April 10, 1990 and FONSI on 5/29/90.

TABLE 5.1-5
SUMMARY OF CALTRANS IMPROVEMENTS

CALTRANS INTERSTATE 5 IMPROVEMENTS		
Description of Project	**Status of Project**	**Environmental Compliance**
OTHER CALTRANS PROJECTS		
In San Juan Capistrano from I-5/East City limit (Ortega Highway). • Construct new interchange.	PSR in progress Environmental document will be prepared by the City of San Juan Capistrano.	To be determined.
On Route 74 from I-5 to Antonio Parkway (Ortega Highway). • Widen roadway	PSR completed. Anticipated environmental document is an IS/EA leading to a ND/FONSI (anticipated date Dec 2005).	To be prepared.
From Riverside County line to 4.8 km westerly (Ortega Highway). Project Study Report approved for alternatives (043200). • Widen roadway	PSR completed. Anticipated environmental document is an IS/EA July (anticipated date 2004).	To be prepared.
On Route 74 near Route 5/74 separation (Ortega Highway). • Extend right turn lanes.	In PSR stage. Environmental document not determined.	To be determined.
Near San Juan Capistrano from 0.5 mile east of Ave Siega to 0.1 mile east of La Pata (Ortega Highway) (031813). • Replace bridge/realign approaches.	Completed.	CE
FUTURE CALTRANS IMPROVEMENTS		
I-5 (Pacific Coast Highway SR1 to Avenida Pico • North and southbound auxiliary HOV lanes.	Environmental document not determined.	To be determined.
I-5 (South of Basilone Road) • North and southbound auxiliary HOV lanes.	Environmental document not determined.	To be determined.

Source: Caltrans District 12 list of projects provided by Caltrans on October 15, 2001 and status of environmental documents provided September 16, 2002 and updated 2003.

PSR	Project Study Report	ND	Negative Declaration
FONSI	Finding of no Significant Impact	IS	Initial Study
EA	Environmental Assessment	SE	Statutory Exemption
CE/CE	Categorical Exemption/Categorical Exclusion		

(1) In addition to the projects described in this table, a number of other minor projects have been or will be implemented by Caltrans in the study area. These other projects are relatively minor and generally are proposed within or immediately adjacent to existing state right-of-way. In addition, these projects are predominately in developed areas, do not substantially change the capacity of the transportation system

and are not anticipated to result in adverse environmental impacts in the study area. Therefore, the following projects are not listed in detail in this table: improvements to the Avenida Mendocino on ramp to northbound I-5, realignment of Stonehill at the on ramp to northbound I-5; construction of a separation barrier between southbound I-5 and Camino Capistrano; improvements to the southbound I-5 off ramp at Camino Capistrano; improvements to the I-5/SR 74 interchange; improvements to the southbound I-5 off ramp at Oso Parkway; improvements to the southbound I-5 off ramp at Avenida Pico; improvements to the I-5 northbound off ramp and southbound on ramp at Avenida Pico; widening of the southbound I-5 off ramp and bridge overpass at Camino de Estrella; retrofit of truck lanes on I-5 in San Juan Capistrano; scour mitigation at I-5 at the San Juan Creek bridge; reconstruction of the Avery Road undercrossing at I-5; retrofit truck lanes on I-5 in Irvine; widen the I-5 northbound on ramp and southbound off ramp at Oso Parkway and add auxiliary lanes from La Paz Parkway to Oso Parkway; reconstruct the La Paz Road undercrossing at I-5; widen the northbound I-5 on ramp at Avenida Mendocino; construct outer barrier/separation barrier and retaining wall in San Juan Capistrano; construct soundwalls at Camino de Estrella; construct northbound auxiliary lane on I-5 from Crown Valley Parkway to Oso Parkway; restripe one HOV lane to mixed use on I-5 in Mission Viejo, Lake Forest and Laguna Hills; widen the northbound on ramp on I-5 at Avenida Palizada; widen the Camino de Estrella northbound on ramp on I-5 and add ramp metering; install traffic signals and improve curb and gutter on the Junipero Serra northbound and southbound ramps on I-5; widen the La Paz Road off ramp on southbound I-5; convert the eastbound El Toro Road and Tustin Road and northbound Jeffery Road on ramps on I-5 to ramp metering; relocate the HOV lanes and realign the mixed flow lanes on I-5 from Alicia Parkway to El Toro Road; and add an auxiliary lane on southbound I-5 from Oso Parkway to Crown Valley Parkway.

TABLE 5.3-1
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO LAND USE

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY	
Conversion of 203 ha (500 ac) into suburban/urban uses.	77 percent to be retained as open space and recreational. Landscaping throughout to soften visual impacts.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS)	
Inconsistencies with the General Plan and local Park Requirements.	Preparation of a Comprehensive Local Park Implementation Plan. Intrusion of land uses and grading to be minimized to achieve consistency.
Development impacts.	Participation in the City's Annual Monitoring Report.
Land uses within SOCTIIP alternative alignments.	Sufficient right-of-way preserved along alignments.
Proposed densities require preservation of Lot B in open space.	Lot B shall be dedicated to the County for open space.
TALEGA DEVELOPMENT FEATURE PLAN AMENDMENT	
No information provided.	--
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
No significant impacts to land use.	No mitigation required.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Landfill activity occurrence within the 61 m (200-ft) ridgeline protection buffer.	Structures not permitted on or within the 61 m (200-ft) protection zone designated in the San Juan Capistrano General Plan.
Recreation facilities could be visible on key ridgelines in the Cities of San Juan Capistrano and San Clemente.	No permanent facilities other than at-grade trails are to be located on key ridgelines in these Cities.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
No information provided.	--
WHISPERING HILLS PLANNED COMMUNITY	
Proposed Project/356 du Encroach upon General Plan-designated ridgelines or within the required 61 m (200-ft) buffer zone.	Ridgeline Exception.
High School/193 du Alternative GPA/Zone Change	Mitigate impacts resulting from high school, as described in Sections of the EIR.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
Significant decrease in diversity of uses and potential inconsistency with City directives for the Town Center Area.	Area plans in the Town Center Area subject to finding by City that land uses are consistent.
Open space requirements compromised.	3.5 ha (8.5 ac) to be provided for open space to meet General Plan.
MARBLEHEAD COASTAL	
No significant impacts to land use.	No mitigation required.
PACIFIC POINT/SAN JUAN MEADOWS	
Deletion of Valle Road and Avenida Calita as commuter roads.	Amendment to the Circulation Element deleting both commuter roads.
No provision for affordable housing.	A Housing Opportunities Program to be prepared in accordance with the City's General Plan guidelines.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Conversion of almost 50 percent of the project site from undeveloped and low intensity uses to high intensity urban uses.	Preservation of 648 ha (1,600 ac) for open space.
Removal of approximately 3.5 ha (8 ac) of prime farmland.	No mitigation measures available to reduce impacts to prime farmland.

TABLE 5.3-1
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO LAND USE

Summary of Impacts	Summary of Mitigation
ARROYO TRABUCO GOLF COURSE	
No significant impacts to land use.	No mitigation required.
DANA POINT HEADLANDS	
General Plan Amendment, Zoning Code and Zoning Map Amendments, creation of a Planned Development District, and Amendment of the Dana Point Local Coastal Program.	The Headlands Development and Conservation Plan, Project Design Features, applies design features to reduce land use impacts. No mitigation required.
SADDLEBACK MEADOWS	
No significant impacts to land use.	No mitigation required.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
No significant impacts to land use.	No mitigation required.
RANCHO MISSION VIEJO	
Potentially significant impact. Impacts regarding land use compatibility and loss of agricultural uses will be analyzed in the Draft Environmental Impact Report (EIR) #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
A cumulative loss of open space within the Foothill Trabuco Specific Plan area and Orange County will occur, although the project will maintain 70% of the site within permanent open space.	No mitigation necessary.
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
Potential incompatibility with existing adjacent land uses.	Review of site for compatibility issues.

Land Use Technical Report (P&D Consultants, 2003).

TABLE 5.3-2
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO SOCIOECONOMICS

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS)	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
WHISPERING HILLS PLANNED COMMUNITY	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
MARBLEHEAD COASTAL	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
PACIFIC POINT/SAN JUAN MEADOWS	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
ARROYO TRABUCO GOLD COURSE	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
DANA POINT HEADLANDS	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--

TABLE 5.3-2
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO SOCIOECONOMICS

Summary of Impacts	Summary of Mitigation
SADDLEBACK MEADOWS	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
RANCHO MISSION VIEJO	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
SADDLE CREEK/SADDLE CREST	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
No analysis was provided; therefore, it is assumed this project will not result in adverse impacts related to socioeconomics and environmental justice.	--

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Socioeconomics and Growth Inducing Impacts Technical Report (P&D Consultants, 2003).

TABLE 5.3-3
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO WATER RESOURCES

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Increase in storm runoff resulting in erosion, on site and downstream flooding, and landslides.	Pollutant load for wash-off to the drainage courses reduced to practicable extent through street cleaning and homeowner's association program to eliminate household pollutant sources.
	Water quality monitoring program for golf course runoff.
	Drainage plans for tracts.
	Certification that downstream improvements to the Segunda Deshecha channel are adequate.
	Runoff management plan for tracts.
Increased on site irrigation related to golf course could result in on site and downstream erosion and siltation.	Landscape Management Plan for review and approval by the County.
	Irrigation System Plan prepared and established.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE)	
Runoff will increase by 35 to 50 percent as result of increased impervious surfaces.	Improvements to Segunda Deshecha channel in accordance with final engineering drawing.
	Storm drains coincident with development of each subdivision map area.
	Certification that downstream improvements to the Segunda Deshecha channel are adequate.
Potential downstream impacts on hydrology resulting from landscape and irrigation of golf courses and other urban uses.	Landscape Management Plan to be submitted for review and approval.
	Regular streetsweeps on all private roads on site to be provided.
	Preservation of the channel in open space to be achieved.
	Surface runoff from development areas to be diverted away from watershed and directed toward Segunda Deshecha.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Increased runoff and erosion due to soil and geologic conditions.	Design for reconstruction of existing culvert under Oso Parkway.
	Slope landscaping specifically designed to suit soil and geological conditions present in the slopes.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Increase in stormwater runoff and localized flooding.	Assumptions, methods and calculations used in sizing drainage and sediment control facilities to be provided.
	Surface drainage plans for final fill bottom excavation plans to be prepared.
	Detention, diversion and drainage facilities designed and constructed to accommodate anticipated volume of precipitation and peak flows.
Potential erosion from circulation and road uses.	Implementation of erosion control measures conforming to County Standards.
	Silt loading to surface waters from the construction activities will be periodically tested and controlled.
Surface water quality degradation possible from landfilling. Potential water quality impacts could occur as a result of circulation and road improvements.	Compliance with National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP) and its NPDES Monitoring and Reporting Plan.
	Implement the existing Surface Water Runoff Monitoring Program.

TABLE 5.3-3
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO WATER RESOURCES

Summary of Impacts	Summary of Mitigation
Potential erosion could increase silt load in surface waters.	Silt loading to surface waters from construction activities to be periodically tested and controlled.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
Summary of Impacts	**Summary of Mitigation**
Impacts on water quality are not anticipated.	Implementing best management practices and working with the local Regional Water Quality Control Board and County Department of Health Standards to meet applicable standards.
WHISPERING HILLS PLANNED COMMUNITY	
Proposed Project/356 du: Over 20% increase in stormwater runoff.	Adhere to Leighton 2001 drainage system recommendations.
Peak flow runoff from the West Canyon may exceed capacity of the existing 54-inch RCP.	Conduct hydrological analysis. Incorporate recommendations of the hydrological analysis. Provide a detention basin, if necessary.
Runoff from the East Canyon may exceed the capacity of the 74-inch RCP.	Conduct hydrological analysis. Incorporate recommendations of the hydrological analysis. . Provide a detention basin, if necessary.
Alteration of the course of intermittent on-site streams, resulting in an increase in the amount of runoff generated.	Adhere to Leighton 2001 design and construction of storm drains and sub-surface drainage.
Creation of contaminated runoff that could impact water quality.	Submit a Water Quality Management Plan.
	Obtain a general NPDES Permit. If the project site becomes part of a Special Area Management Plan, then developer will comply with requirements of SAMP.
	Landscape plan utilizing drought tolerant plants with low fertilizer requirements. Minimize irrigation runoff.
	Detention basins to function as water quality basins and flow control basins.
High School/193 du Alternative: All impacts same as Proposed Project/356 du except one additional impact: Modification of an existing blueline stream.	Same as Proposed/356 du mitigation measures. "Blueline" stream analysis and recommendation incorporated into final design.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
No information provided.	--
MARBLEHEAD COASTAL	
Pollutants could accumulate in the sediments in the detention basin.	All recommendations in the Preliminary Stormwater Management Plan should serve as the definitive guide to mitigation measures for the proposed project.
	Maintenance program to remove sediment to be included. Silt curtains or other forms of barriers to be used to confine turbid water to the immediate area of the maintenance activity.
	Additional construction level engineering studies to be performed.
	Prior to final map approval a hydrology and hydraulic study to be prepared and submitted for review and approval.
PACIFIC POINT/SAN JUAN MEADOWS	
Short term peak flow increases in storm runoff.	All necessary drainage facilities to be constructed.
	All local on site facilities to be designed to accommodate a 25 year storm.

TABLE 5.3-3
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO WATER RESOURCES

Summary of Impacts	Summary of Mitigation
	On site runoff directed through the freeway culverts in such a manner as not to exceed a 100 year storm.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Increase in runoff.	Drainage studies to be submitted to and approved prior to final tract/parcel map or issuance of grading permits.
	Design, construct or financially secure surface drainage and storm drain facilities.
Increase in erosion on site.	Compliance with requirements of NPDES stormwater permits, the Orange County Drainage Area Management Plan and the specific requirements of the County's stormwater permits for construction and operation.
Potential for surface water contaminants.	Urban runoff management plan to be designed.
	SWPPP to be prepared and approved prior to issuance of grading permit.
ARROYO TRABUCO GOLF COURSE	
Potential to significantly impact water quality.	Prior to issuance of grading permits, design provisions for surface drainage, design of all necessary storm drain facilities and dedication of the associated easements to the County.
	Prior to issuance of building permits, participation in Master Plan of Drainage.
	Submittal and approval of a Water Quality Management Plan prior to issuance of grading or building permits.
	Obtain coverage under the NPDES statewide General Construction Activity Stormwater Permit prior to issuance of grading permits.
DANA POINT HEADLANDS	
Energy dissipation structures and three outlets to Strand Beach, will confine drainage on site to improved structures reducing existing on-site erosion in this area	Implementation of Project Design Features 7-3 and 7-4 will reduce effects on beach erosion. No mitigation required.
The project site is not within the 100-year floodplain, however, analysis of the 100-strorm runoff will ensure that all pad elevations are a minimum of one foot above the 100-year flood elevation.	Implementation of Project Design Features reduce impacts of flooding on the project site. No mitigation required.
Potential for inundation of structures by tsunamis, although the Orange County coast is generally protected by coastal configuration and offshore islands.	All proposed habitable structures shall be designed and constructed at elevations higher than about 20 to 25 feet above mean sea level.
No mudflows are present within the project site; however, under uncontrolled drainage conditions, the sandy surficial soils are susceptible to rapid erosion from surface flow of water.	Install appropriate subdrains behind fill slopes and retaining walls as determined in the final geotechnical report.
Because the project site receives subsurface drainage from upgradient properties, it is subject to the potential for uncontrolled levels and flow of groundwater.	Install appropriate subdrains behind fill slopes and retaining walls as determined in the final geotechnical report
During construction activities, disturbance of soil will occur, pollutants could be introduced to runoff from the site during these activities which could impact the quality of the marine receiving waters.	Implementation of Project Conditions will reduce construction erosion impacts. No mitigation required.

TABLE 5.3-3
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO WATER RESOURCES

Summary of Impacts	Summary of Mitigation
Operation of the project will include structural and non-structural BMPs so that pollutants and runoff will not contribute to degradation of receiving waters.	Implementation of Project Design Features and Project Conditions (including standard Best Management Practices) reduce potential impacts involving water quality in the runoff and the marine receiving waters. No mitigation required.
The project may affect shallow groundwater, which is most susceptible to contamination from the high pollutant loads in dry-weather runoff and the "first flush' of a storm event.	Implementation of Project Design Features reduce impacts to groundwater quality. No mitigation required.
SADDLEBACK MEADOWS	
Implementation of the project would result in the introduction of impervious surfaces and would result in a decrease of in the area available for stormwater percolation. Drainage impacts could occur.	Project design includes the incorporation of drainage and flood control. Requirement to prepare a master drainage plan in to Orange County Flood Control District Standards in consultation with the Army Corps of Engineers. Impact is less than significant after mitigation.
Short-term water quality impacts from erosion and siltation.	Construction siltation abatement and control measures included in the required SWPPP and WQMP
Long term water quality impacts from urban uses.	Special design features were incorporated into project to address site specific and regional water quality impacts. These include standard best management practices and site specific drainage and filtration techniques and design. Compliance with provisions of NPDES stormwater permit included in mitigation measures.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Summary of Impacts	**Summary of Mitigation**
Wind and water-related soil erosion.	Prior to issuance of a grading permit, the applicant shall provide evidence that the development of the project area shall comply with the City of Irvine, specifically the NPDES discharge permitting requirements. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared prior to approval grading permits.
Substantial increase in the rate or amount of surface runoff due to new development may occur resulting in on- or off-site flooding.	Prior to issuance of a grading permits, project applicants must submit an approved Water Quality Management Plan (WQMP).
Potential to degrade surface water quality.	In accordance with City standards, Notices of Intent (NOI's) shall be submitted to the State Water Resources Control Board prior to issuance of grading permits.
Proposed development in PAs 51 and 30 could be subject to potential flooding associated with a 100-year storm frequency.	Prior to issuance of grading permits, evidence shall be provided that demonstrates that all stormwater runoff and dewatering discharges from the project area shall be managed to the maximum extent practicable or treated as appropriate to comply with water quality requirements identified in the Santa Ana Regional Water Quality Control Plan.
	Prior to approval of the first tentative tract map or parcel map, detailed hydrology studies shall be conducted.

TABLE 5.3-3
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO WATER RESOURCES

Summary of Impacts	Summary of Mitigation
	Prior to issuance of a building permit, developers with property located in the newly delineated 100-year floodplain shall be required to construct such improvements as necessary to remove the property from the 100-year floodplain. The developer also shall prepare a Letter of Map Revision (LOMR) request to have the FIRMs revised t remove the development areas from the 100-year floodplain upon completion of the approved flood control facilities.
RANCHO MISSION VIEJO	
Potentially significant impact. Will be analyzed in the Draft Environmental Impact Report (EIR) #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
Hydrology/Draingage Surface Runoff Approximately 99 acres of the drainage areas will be developed, the 100-year peak discharge will increase from 964 to 1,065 cfs. approximately 33 acres of the drainage areas will be developed, the 100-year peak discharge will increase from 679 to 699 cfs. for Saddle Creek and Saddle Crest, respectively. Sediment and bulked flow will be allowed to pass through the drainage system and	With incorporation of Project Design Features, impacts are less than significant. No mitigation measures necessary.
Flooding The increase in stormwater runoff will total approximately 7.8 percent for both projects.	
Sediment Yield An estimated 632 and 206 ton reduction in sediment yield is expected for Saddle Creek and Saddle Crest, respectively, due to increased pavement and reduced pervious surfaces.	
Riverbed Scour The maximum scour depth of Aliso Creek will increase approximately 2 feet at Cook's Corner in a 100-year flood event.	
Cumulative: The project will increase flows ultimately discharging to the Pacific Ocean and minimally increase peak storm water runoff within Aliso Creek watershed. Implementation of proposed Aliso Creek streambed stabilization device will beneficially impact existing scour problems within the streambed.	
Water Quality Construction-Related Impacts Erosion and sedimentation will potentially impact surface water quality within the watershed. There is a potential for accidental spills. Post-Construction Impacts Long-term water quality impacts due to the addition of urban pollutants.	With incorporation of Project Design Features, impacts are less than significant. No mitigation measures necessary.

TABLE 5.3-3
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO WATER RESOURCES

Summary of Impacts	Summary of Mitigation
The 85th percentile 24-hour rainfall event runoff volume will increase to 1.81 ac.-ft. from the existing 0.56 ac.-ft. and the 85th percentile, 24-hour rainfall even runoff volume will increase to 0.57 ac.-ft. from the existing 0.17 ac.-ft. for Saddle Creek and Saddle Crest respectively.	
Cumulative: Land uses and zoning within the 1,477-acre Aliso Creek watershed include 648 acres scheduled to remain as agricultural/natural, 824 acres of residential uses, and 5 acres of school uses. Cumulative development will potentially impact both surface water and groundwater quality.	
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVELOPMENT - SAN JUAN CAPISTRANO	
Project designed to stay out of 25-year flow and protect to 100-year flow. Potential urban runoff impacts.	Site specific drainage studies. Standard water quality mitigation including plans, swales, erosion control and flows dissipaters.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Source: P&D Consultants (2003).

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
San Diego Fairy Shrimp	No quantitative estimates of historic population exist. Habitat: There was historically extensive vernal pool habitat in coastal areas of Orange County. In San Diego County: most of the vernal pools that historically covered 200 square miles were destroyed before 1990. (68 Fed. Reg. 19888, 19890 (April 22, 2003).)	No quantitative estimates of current population exist. Current habitat estimates: Less than 200 acres, including approx. 70 vernal pools in San Diego County and approx. 25 vernal pool complexes in San Diego, Orange, and Santa Barbara Counties, and Baja California. Orange County populations: Fairview Regional Park, 62 ac (25 ha); Newport Banning Ranch and Rancho Mission Viejo. (Draft South County NCCP/HCP Planning Guidelines 68 Fed. Reg. 19888, 19890 (April 22, 2003); 62 Fed. Reg. 4925, 4926, 4929 (Feb. 3, 1997); SR 125 South Final EIR/EIS, p. 3-34; City MSCP. p. 44.)	No direct or indirect impacts to known populations or habitat. Impacts on critical habitat, FEC-M, FEC-W, A7C-FEC-M and I-5 Alternatives: 0.05 mi. (0.08 km.)	No direct impacts noted from cumulative projects (Table 5.3-5).	Orange County: cumulative loss is nearly total. San Diego County: cumulative loss is estimated at 90 to 97 percent. (68 Fed. Reg. 19888, 19890 (April 22, 2003); 62 Fed. Reg. 4925, 4926, 4929 (Feb. 3, 1997); SR 125 South Final EIR/EIS, p. 3-34; City MSCP. p. 44.) Proposed action and future actions will not have adverse cumulative effects.

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
Riverside Fairy Shrimp	No quantitative estimates of historic population exist. Historic habitat: Formerly widespread, in vernal pools, pool-like ephemeral ponds, and human-modified depressions from coastal southern California south to northwestern Baja California, Mexico. (66 Fed. Reg. 29384 (May 30, 2001).)	Current population: Orange County: Three documented populations: Saddleback Meadows/Foothill-Trabuco area, Ranch Mission Viejo and El Toro. Other documented populations exist in Ventura, western Riverside and San Diego Counties. (Draft South County NCCP/HCP Planning Guidelines 58 Fed. Reg. 41384, 41385, 41388 (Aug. 3, 1993).) Current habitat: extremely restricted distribution within a limited number of vernal pools. (County MSCP, p. 43; City MSCP, p. 45.)	No direct or indirect impacts to known populations or habitat. Impacts on critical habitat, CC Alternative: 206.64 ac (83.63 ha).	The Saddleback Meadows project will have impacts on a 0.152 ha (0.4 ac) ephemeral pond.	San Diego County: habitat has declined by 97 percent. Orange County: habitat has declined by 90 to 98 percent. (66 Fed. Reg. 29384, 29385 (May 30, 2001); 58 Fed. Reg. 41384, 41387 (Aug. 3, 1993).) Proposed action and future actions will not have significant adverse cumulative effects.
Tidewater Goby	No quantitative estimates of historic population exist.	Currently, tidewater gobies occupy eight locations in Camp Pendleton. Two of	Alternatives FEC-M, FEC-W, and A7-C: Potential impacts likely but not quantified if	A random event or combination of unfavorable conditions could extirpate existing	Since 1900, the tidewater goby has disappeared from approximately 50

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
	Historic habitat: at least 87 of California's coastal lagoons, from near the Oregon border to Agua Hedionda Lagoon (northern San Diego County). (59 Fed. Reg. 5494, 5495 (Feb. 4, 1994); 65 Fed. Reg. 69693, 69694 (Nov. 20, 2000).)	these populations range from several thousand to 70,000 gobies. (59 Fed. Reg. 5494, 5495 (Feb. 4, 1994); 65 Fed. Reg. 69693, 69703, 69705 (Nov. 20, 2000).)	occupied drainages are crossed. Mitigation measures would be applied. Impacts on critical habitat, FEC-M, FEC-W and I-5 Alternatives: 0.04 mi (0.06 km.)	populations. The protection of designated critical habitat will reduce the likelihood of cumulative impacts. No direct effects from cumulative projects (Table 5.3-5).	percent of formerly occupied lagoons. (59 Fed. Reg. 5494, 5495 (Feb. 4, 1994); 65 Fed. Reg. 69693, 69703, 69705 (Nov. 20, 2000).) Because of mitigation and absence of effects from cumulative projects, the proposed action and future actions will not have adverse cumulative effects
Southern Steelhead Trout	No quantitative estimates of historic population exist. Habitat: Southern steelhead (those occurring south of San Francisco Bay) were formerly found in coastal drainages as far south as the Santo Domingo River in northern Baja California. (Steelhead Restoration and Management Plan for	Reported in San Mateo Creek in Camp Pendleton (northern San Diego County). Possibly other remnant populations present in isolated headwaters. (67 Fed. Reg. 21587 (May 1, 2002); Steelhead Restoration and Management Plan for California CDFG, 51.)	FEC-M, FEC-W and A7C-FEC-M Alternatives: Potential impacts likely but not quantified if occupied drainages are crossed. Mitigation measures would be applied.	No direct effects from cumulative projects (Table 5.3-5).	Drastic decline in numbers in nearly all southern streams. 92 to 100 percent of populations estimated to be extinct in Orange and San Diego Counties. (DFG, 52.) Because of mitigation and absence of effects from cumulative projects, the proposed action and future actions will not have adverse cumulative effects

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
	California, CDFG, 1996, 51.)				
Arroyo Toad	No quantitative estimates of historic population exist. Habitat: Historically found along the length of drainages in southern California from San Luis Obispo to San Diego County. (59 Fed. Reg. 64859 (Dec. 16, 1994).)	Population: Populations persist in San Diego County; scattered populations in Orange County, including San Juan, San Mateo and San Onofre watersheds. Habitat: Headwaters support small isolated populations.	FEC-M, FEC-W and A7C-FEC-M (Initial) Alternatives: One individual affected. FEC-M, FEC-W, and A7C-FEC-M (Ultimate) Alternatives: Two individuals affected. I-5 Alternative: One individual affected. Impacts on critical habitat in San Juan Creek: FEC-M, FEC-W and A7C-FEC-M Alternatives: 0.28 mi. CC Alternative: 0.25 mi. Impacts on critical habitat in San Mateo Creek: FEC-W and FEC-M Alternatives: 0.04 mi. (0.06 km.). Mitigation would apply.	No direct effects from cumulative projects (Table 5.3-5).	Extirpated from large areas of its range. Because indirect project impacts cannot be mitigated, cumulative impacts are adverse.
Southwestern Willow Flycatcher	Population: Data are incomplete; no wide scale, few local studies undertaken.	Approximately 121 southwestern willow flycatcher breeding territories are known to exist in California with	No direct or indirect impacts. No impacts on critical habitat.	No direct effects from cumulative projects (Table 5.3-5). SDMSCP protects 75 percent of remaining nesting	Although data are incomplete, widespread habitat and population declines occur throughout the range.

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
	Habitat: Historic range included southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado and extreme northwestern Mexico. In California, it included all lowland riparian areas in southern third of state. Riparian habitats already significantly altered by 1900. (60 Fed. Reg. 10693, 10699, 10709 (Feb. 27, 1995); 62 Fed. Reg. 39129 (July 22, 1997); Southwestern Willow Flycatcher Recovery Plan.)	single territories recently located in the Talega area and Cañada Gobernodora. Approximately 549 territories located during 1993 to 1996 surveys conducted throughout the species know range. Population trend information since the mid-1980s shows decline in most areas. Overall, current range is similar to the historical range, but the quantity of suitable habitat within that range is much reduced from historical levels. (Draft South County NCCP/HCP Planning Guidelines; 60 Fed. Reg. 10693, 10697, 10699, 10709 (Feb. 27, 1995); 62 Fed. Reg. 39129, 39130 (July 22, 1997).; Southwestern Willow Flycatcher		habitat in San Diego county; Orange County NCCP Program includes 15,188 ha (37,300 ac) of habitat, requires nesting surveys.	Proposed action and future actions will not have adverse cumulative effects.

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
		Recovery Plan.)			
California Gnatcatcher	Population: Considered "locally common" in mid-1940s. Habitat: In 1945, there were 38,475 (95,000 ac) of coastal sagebrush in Orange County and 154,305 ha (381,000 ac) in San Diego County. (58 Fed.Reg. 16742, 16746, 16751, 16752 (March 30, 1993).	Population: NCCP field surveys indicate that about 1,000 pairs of gnatcatchers may occur in Orange County. (Biological Opinion, NCCP, p. 22.) Habitat: In 1990, there were 19,440 ha (48,000 ac) of coastal sagebrush in Orange County and 54,675 to 61,560 ha (135,000 to 152,000 ac) in San Diego County. (68 Fed.Reg. 20228, 20232 (April 24, 2003); 58 Fed.Reg. 16742, 16746, 16749, 16751, 16752 (March 30, 1993).)	Direct impacts from all alternatives; see Table 4.12-3. Impacts on critical habitat from all alternatives except I-5; see Table 4.12-5. Most significant from the FEC-M, FEC-W and A7C-FEC-M Alternatives.	Future projects will have impacts, including Whispering Hills, Coastal Ranch, Pacific Point/San Juan Meadows and Marblehead Coastal (Table 5.3-5).	It is estimated that, between 1945 and 1990, 50 percent of CSS in Orange County and 60 to 65 percent in San Diego County was lost. (68 Fed.Reg. 20228, 20232 (April 24, 2003); 58 Fed.Reg. 16742, 16746, 16749, 16751, 16752 (March 30, 1993).) Because of impacts from the project and from future projects, cumulative impacts will be adverse.
Least Bell's Vireo	No quantitative estimates of historic population exist. Habitat: The historical breeding range extended from Baja California to	California population estimated at 2,443 territories in 2001. The species has been observed in low, though increasing, numbers in Orange County, ranging	Potential direct impacts on two use areas, AIO Alternative; direct impacts on one use area, CC, CC-ALPV and A7C-ALPV Alternatives. Mitigation	Future projects will have impacts, including Prima Deshecha Sanitary Landfill, Whispering Hills, and Arroyo Trabuco Golf Course (Table 5.3-5).	It has been estimated that the least Bell's vireo has been extirpated from over 95 percent of its former range. The status of the least Bell's vireo in

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
	interior northern California. (SR 125 South Final EIR/EIS, p. 3-36.)	from no observations in 1988 and 1989 to a high of at least 111 territories in 2002. Territorial LBVs were observed at 16 locations in the study area during 1995 surveys. (Draft South County NCCP/HCP Planning Guidelines; Biological Opinion, NCCP, p. 25; unpublished report, (Willick 2001).)	would apply. No impacts on critical habitat.		1999 was "stable to increasing." (CDFG.) Because of impacts from the project and from future projects, cumulative impacts will be adverse.
Pacific Pocket Mouse	No quantitative estimates of historic population exist. Rapid depletion of population starting in the 1940s, as a result of coastal development and resultant habitat destruction and fragmentation. Habitat: Between 1894 and 1972, a minimum of eight general locales encompassing 29 sites from Los Angeles County	Population: Known to occur only on privately-owned land near Dana Point and at two locations on Camp Pendleton in San Diego County. 1995 and 1996 trapping efforts caught 33 and 22 individuals, respectively, in the survey area. 2002 focused survey caught four individuals. At Dana Point Headlands, 25 to 36 mice detected	No direct impacts. Indirect impacts from the FEC-M, FEC-W and A7C-FEC-M Alternatives.	No direct effects from cumulative projects (Table 5.3-5). The Orange County population is located in a recovery area under the recovery plan.	Habitat and potential range apparently have been significantly reduced in the recent past. (59 Fed. Reg. 49752, 49760-49761 (Sep. 29, 1994).) Proposed action and future actions will not have adverse cumulative effects.

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
	to San Diego County. Found in the San Joaquin Hills in Orange County from 1968 through 1971. Believed extinct for 20 years, until a population found in 1993 in the Dana Point headlands. (59 Fed. Reg. 49752, 49753, 49759 (Sep. 29, 1994); City MSCP, p. 50; Biological Opinion, NCCP, p. 31.)	in 1993. No confirmed sightings in San Diego County since 1932. Habitat: 4.17 ha (10.3 ac) in survey area. Current occupied habitat estimated at less than 405 ha (1,000 ac).			
Peregrine Falcon	Population and habitat: Peregrine falcons once ranged over most of California and across North America. Serious decline in numbers began in the 1940s, due to pesticide poisoning. In the mid 1970s, only 10 breeding pairs were known of in California. (CDFG)	Population: No comprehensive survey had been conducted since 1992. It is estimated that there are more than 250 breeding pairs of peregrine falcons in California today. (UC Santa Cruz Predatory Bird Research Group.) Habitat: The California breeding range, which has been expanding, now includes coastal	Minimal indirect effects may occur from human proximity and habitat loss, lighting, and other edge effects. Peregrine falcons were located in the CC and CC-ALPV alternatives.	No known nesting sites are in the project area. Urbanization could affect foraging habitat. No direct effects from cumulative projects (Table 5.3-5).	Following significant declines, population has increased in response to legal protection, restrictions on organochlorine pesticides (e.g., DDT) in the United States and Canada, and captive-breeding and release. Proposed action and future actions will not have adverse cumulative effects.

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
		southern California. The species is not known to nest in the survey area.			
Swainson's Hawk	Population and habitat: During the early 1900s, the Swainson's hawk nested in lowlands throughout most of California, maintaining populations as large as 17,000 pairs. www.dfg.ca.gov/te_species/index/classification/birdslist/swainhawk.hmt (CDFG)	Ten years ago, only 550 nesting pairs were found in California and numbers have been slowly declining. One pair nests in Los Angeles County. There is no evidence of breeding in the study area, but they forage during migration to and from South America wintering grounds. www.dfg.ca.gov/te_species/index/classification/birdslist/swainhawk.hmt (CDFG).	No direct impacts. Only minimal indirect effects may occur from human proximity and foraging habitat loss.	No direct effects from cumulative projects (Table 5.3-5).	Habitat destruction in nesting and foraging areas has combined with threats (including poisoning) on South American wintering grounds to significantly reduce numbers. Proposed action and future actions will not have adverse cumulative effects.
Thread-leaved Brodiaea	No quantitative estimates of historic population exist. Habitat: The historical range extends from Los Angeles and San Bernardino Counties through eastern Orange and western Riverside	34 populations, with over 4,400 individuals, were identified in the study area in 2001. There were an estimated 11,650 to 14,650 individual plants in Orange County in 2002	Direct and indirect impacts on individuals and populations from the FEC-M, FEC-W, A7C-ALPV, and A7C-FEC-M Alternatives (see Table 4.12-3).	Direct and indirect impacts from future projects; mitigation measures will be applied.	Range has been diminished and fragmented. At least nine populations have been extirpated, primarily in San Diego County. (63 Fed. Reg. 54975, 54977 (Nov. 12, 1998).)

TABLE 5.3-4
CONTEXT OF CUMULATIVE IMPACTS FOR BIOLOGICAL RESOURCES

Species	Historic Populations/ Habitat	Current Populations/ Habitat	Effect of Proposed Action	Effects from Future Actions	Overall Cumulative Effect from Past, Present, and Reasonably Forseeable Future Projects
	Counties to Carlsbad in northwestern San Diego County. (63 Fed. Reg. 54975, 54977, 54978, 54982-54983 (Nov. 12, 1998).)	(Draft South County NCCP/HCP Planning Guidelines.)			Because of indirect impacts from the project and from future projects, cumulative impacts will be adverse.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Summary of Impacts	**Summary of Mitigation**
The proposed project will not result in any significant impacts on biological resources.	No mitigation required.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE)	
Summary of Impacts	**Summary of Mitigation**
Potential impacts to sensitive biological resources.	Reserve area to be redesignated as a preserve area permanently limiting uses within it. Applicant to consult with CDFG for blue line areas pursuant to section 1601-6 of the State Fish and Game Code.
Indirect impacts to sensitive biological resources through introduction of exotic ornamental vegetation.	A list of potentially invasive plant species to be provided to the City and County.
Significant impacts to oak trees.	Prior to approval of grading or development permits applicant to submit oak tree preservation guidelines.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Summary of Impacts	**Summary of Mitigation**
Adverse and significant impacts due to construction and operation of the proposed high school.	Lighting directed away from western hills, western periphery of the campus fenced, loudspeakers directed away from western hills, fire clearance at base of western hills done selectively to leave at least 30 percent of native shrub habitat, minimization of glass on western sides of buildings adjacent to eastern hill area, trash in closed containers, no 4-H livestock activities at school. Compliance with permitting requirements of the ACOE, USFWS, and CDFG. Use of landscape plan.
Loss of open field habitat and 16 ha (40 ac) of grassland.	Mitigation for either 17.9 or 12.31 ac will occur as a credit assignment in the Cañada Gobernadora wetlands mitigation bank. Participation in "Project Wild."
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Summary of Impacts	**Summary of Mitigation**
Potential adverse effects on special status habitats and species of special concern. Potential vegetation removal and habitat disturbance.	Focused surveys to be conducted for thread-leaved brodiaea, Coulter's saltbush, many-stemmed dudleya, southern tarplant, vernal barley and paniculate tarplant. Wildlife habitat preservation monitoring.
Coastal sage scrub (CSS) removal.	Review and approval of an Interim Habitat Loss Mitigation Plan (IHLMP) by the USFWS in compliance with the NCCP and the Interim CSS Habitat Loss Process. Impacted CSS to be replaced at a minimum 2:1 ratio. Conceptual Coastal Sage Scrub Mitigation Plan to be prepared along with maintenance and monitoring program done by biologist.
Riparian resource removal.	Sycamore and willow trees four or more inches to be tagged and records kept of removal. Conceptual Riparian Mitigation Plan to be prepared. Impacted riparian areas to be replaced at a minimum 2:1 ratio. Obtain 404 Permit and 1601 Streambed Alteration Agreement. Reporting system for maintenance, revegetation and monitoring.
Potential indirect noise, air quality and lighting disturbance impacts on biological resources.	Incorporation of regulatory agency guidelines to reduce impacts.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

Significant habitat areas impacted.	Operations phased during the nesting and breeding season for coastal California gnatcatcher and least Bell's vireo.
Effects on nesting sites for listed bird species and raptors, and dens for coyotes, bobcats and mountain lions.	Construction to be redirected around nesting sites for a distance of 152.4 meters (500 feet) for candidate and listed species of birds and a distance of 305 meters (1,000 feet) for raptors, during nesting and breeding seasons. For coyote, bobcat or mountain lion dens, construction shall be redirected temporarily around a den for a distance of 305 meters (1,000 feet).
Nine pairs of least Bell's vireo would be impacted.	Obtain authorization from USFWS to impact species. Mitigation/compensation must be approved through Section 4(d), Section 7 or Section 10(a) of the FESA. Implement measures developed through consultation with agencies and City at site during construction period.
WHISPERING HILLS PLANNED COMMUNITY	
Summary of Impacts	**Summary of Mitigation**
Proposed Project/356 DU Impact 2.85 ha (7.03 ac) of riparian vegetation: 1.15 ha (2.84 ac) under ACOE jurisdiction and1.54 ha (3.81 ac) under CDFG jurisdiction.	Obtain necessary permits from ACOE and CDFG.
	Restoration of habitat with no less than 1:1 ratio; mitigation location determined through consultation with ACOE and CDFG.
	Removal of riparian habitat occupied by the least Bell's vireo will be prohibited during breeding and nesting season.
Construction would impact of 25.15 ha (62.14 ac) of coastal sage scrub habitat.	USFWS to authorize coastal sage scrub removal; a detailed coastal sage scrub mitigation plan will be developed for USFWS and City review and approval.
Impact 0.71 ha (1.76 ac) of native grassland.	Submit a native grassland mitigation plan to City for review and approval.
May impact non-listed plant species within Southern California Edison (SCE) easement and remedial grading areas.	Focused pre-construction surveys will be conducted on impacted areas not subject to previous studies for non-listed species within suitable habitat within the impact areas in the SCE easement and remedial grading areas. If a substantial population of these species is found to be present in the impact area, measures to avoid and/or minimize the impact will be developed in consultation with the City.
Thread-leaved brodiaea may be located in the project impact area.	For grading prior to May 1, 2002, a qualified biologist will identify habitat areas with greatest potential for thread-leaved brodiaea in SCE easement and remedial grading areas not previously surveyed. Topsoil in potential habitat areas will be stockpiled then spread within appropriate restoration areas. For grading after May 1, 2002, pre-construction surveys will be conducted during the spring if thread-leaved brodiaea is found in the impact area; measures to avoid and/or minimize impact will be developed in consultation with the City.
Coulter's saltbush will be impacted.	The population of Coulter's saltbush will be salvaged from the project site.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

Three pairs and 13 individual coastal California gnatcatchers would be directly impacted. Two unpaired individuals adjacent to the impact area and one unpaired male would be indirectly impacted.	Obtain authorization from USFWS to impact species. Mitigation/compensation must be approved through Section 4(d), Section 7 or Section 10(a) of the FESA. Implement measures developed through consultation with agencies and City at site during construction period.
Impact habitat that has been occupied by one male least Bell's vireo.	Obtain authorization from USFWS to impact species. Mitigation/compensation must be approved through Section 4(d), Section 7 or Section 10(a) of the FESA. Implement measures developed through consultation with agencies and City at site during construction period.
Significant adverse effect on raptors.	Seven days prior to construction activities, a qualified biologist will survey within the limits of project disturbance for the presence of any active raptor nests/burrows. Any nest/burrow found will be mapped on construction plans; results will be provided to CDFG. If nesting activity is present the active site will be protected until nesting activity has ended. If an active nest/burrow is observed during the non-nesting season, it will be monitored by a biologist. When the raptor is away from the nest/burrow site, the biologist will flush any raptor to open space areas and remove the nest.
Indirect noise impacts would be significant if the coastal California gnatcatcher, least Bell's vireo, or nesting raptor is found within152.4 meters (500 feet) of the impact area and if construction were to occur during the nesting/breeding/dispersal season.	A Construction Noise Minimization Program will be submitted to the City prior to issuance of a grading permit.
Water quality impacts from urban and landscaping chemicals and nutrients.	Obtain a general National Pollution Discharge Elimination System (NPDES) Permit and comply with all the provisions of the permit including developing a Storm Water Pollution Prevention Plan (SWPPP). A monitoring program for construction and post-construction will be developed.
Invasive exotic plant species will degrade the native vegetation in the project vicinity.	Landscaping designs will be submitted to the City and reviewed by a biologist to determine that no invasive or exotic plant species are used in the proposed landscaping.
Night lighting will inhibit potential special status species wildlife from using natural open space areas adjacent to lighted areas.	A lighting plan will be submitted to the City for review and approval. Direct lighting away from natural open space areas.
<u>High School/193 DU Alternative</u> Impact 2.22 ha (5.48 ac) of riparian vegetation: 1.15 ha (2.84 ac) under ACOE jurisdiction and 1.54 ha (3.81 ac) under CDFG jurisdiction.	Same as Proposed Project 356/DU Mitigation Measures.
Construction would impact 28.52 ha (70.47 ac) of coastal sage scrub.	Same as Proposed Project 356/DU Mitigation Measures.
Impact 0.71 ha (1.76 ac) of native grassland.	Same as Proposed Project 356/DU Mitigation Measures.
May impact non-listed plant species within SCE easement and remedial grading areas.	Same as Proposed Project 356/DU Mitigation Measures.
Thread-leaved brodiaea may be located in the project impact area.	Same as Proposed Project 356/DU Mitigation Measures.
A location of Coulter's saltbush will be impacted.	Same as Proposed Project 356/DU Mitigation Measures.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

Two pairs and five individual unpaired coastal California gnatcatchers would be directly impacted.	Same as Proposed Project 356/DU Mitigation Measures.
Significant adverse effect on raptors.	
Indirect noise impacts would be significant if the coastal California gnatcatcher, least Bell's vireo, or nesting raptor is found within 152.4 meters (500 feet) of the impact area and if construction were to occur during the nesting/breeding/dispersal season.	Same as Proposed Project 356/DU Mitigation Measures.
Water quality impacts from urban and landscaping chemicals and nutrients.	Same as Proposed Project 356/DU Mitigation Measures.
Invasive exotic plant species will degrade the native vegetation in the project vicinity.	Same as Proposed Project 356/DU Mitigation Measures.
Night lighting will inhibit potential special status species wildlife from using natural open space areas adjacent to lighted areas.	Same as Proposed Project 356/DU Mitigation Measures.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
Summary of Impacts	**Summary of Mitigation**
Thread-leaved brodiaea population impacts.	Mitigation to meet California Endangered Species Act.
Impacts on the 13 pairs of California gnatcatcher, San Diego cactus wren, and their habitats.	Mitigation to meet satisfaction of USFWS and CDFG.
MARBLEHEAD COASTAL	
Summary of Impacts	**Summary of Mitigation**
Impacts to plants and wildlife.	Section 404 Permit and CDFG Streambed Alteration Agreement obtained. Preservation of 0.77 ha (1.9 ac) of existing wetlands and 0.61 ha (1.5 ac) of sage scrub. Restoration and enhancement of additional 1.01 ha (2.5 ac) of wetland habitat and 4.05 ha (10 ac) of CSS. Transplantation of 0.12 ha (0.30 ac) of needlegrass grasslands. Completion of recovery of Blochman's dudleya plants with buffer area surrounding reserve. Place 30.48 meters (100-foot) buffer adjacent to preserved/restored wetlands in canyon bottoms.
	Funding to provide long term monitoring and management of preserved and restored biological resources. Off site measures to mitigate impacts to wetlands and CSS.
Occupied CSS impacted, resulting in direct take of two coastal California gnatcatcher pairs.	Biologist to be on site to monitor and oversee netting and relocation of identified species. Avoidable CSS habitat to be temporarily fenced. CSS identified for protection to be periodically sprayed with water.
PACIFIC POINT/SAN JUAN MEADOWS	
Summary of Impacts	**Summary of Mitigation**
Loss of CSS community.	Implement the required Concept Giant Reed Eradication and Riparian Revegetation Plan and the Tree Preservation Plan.
Man-made wetlands impacted.	
Two sensitive animal species and one plant species will possibly be impacted.	Acquisition of all necessary permits. Coordination with CDFG and ACOE.
	Adequate mitigation of California gnatcatcher per CDFG and/or USFWS.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

	Spring survey done to determine presence/absence of San Diego coast horned lizard and turkish rugging. Applicant to mitigate the loss of either or both species in accordance with agency requirements if found to inhabit the site.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PLANNED COMMUNITY)	
Summary of Impacts	**Summary of Mitigation**
Loss of 33.6 ha (83.05 ac) (17.6 percent) of sagebrush scrub. Sagebrush scrub provides habitat for the California gnatcatcher, cactus wren, Southern California rufous-crowned sparrow and Bell's sage sparrow.	Impacts on sagebrush and the wildlife habitat it represents will be mitigated through participation in the south subregional NCCP and avoidance of sagebrush areas during the nesting season of sensitive bird species.
	If construction coincides with breeding seasons of the species, surveys will be conducted for presence/absence. If present, no grading activities shall occur. Sagebrush scrub habitat to be preserved permanently on Chiquita Ridge in conjunction with the NCCP.
Affect 2.27 ha (5.62 ac) (28.5 percent) of coast live oak woodland.	Tree relocation/replacement program for coast live oaks and sycamore trees and a management program shall be developed prior to grading.
	If during raptor breeding season, survey shall be conducted for active raptor nests. If nests are found no construction shall take place within 152.4 meters (500 feet) and trees shall be removed during non-breeding season.
	If after final design impacts remain, the avoidance, protection, and replacement guidelines suggested for the primary alignment will be implemented.
Loss of 2.81 ha (6.94 ac) (9.6 percent) of the arroyo willow riparian forest.	Formal wetland delineation must be conducted.
	Impacts would be mitigated through mitigation plans required by the ACOE and CDFG.
Riparian habitat provides habitat to southwestern willow flycatcher, least Bell's vireo, yellow warbler and yellow-breasted chat.	Preconstruction surveys will be conducted to ensure that no protected species have moved into the area. If present, grading and habitat removal shall not take place during breeding season.
Impacts on the southern subregional NCCP.	Upon adoption of the southern subregional NCCP, the primary alignment may require redesign.
Loss of 908.31 ha (2,244.40 ac) (56.3 percent) annual grassland.	Partially mitigated through the permanent preservation protection of an area of similar habitat and size.
This would affect several sensitive raptor species known to occur in the area.	The Resource Management Plan (REMP) provides measures to reduce impacts to raptor nesting sites through avoidance or relocation of nests. However, loss of habitat is significant.
Annual grassland represents substantial loss of breeding and foraging habitat for regional populations of the California horned lark, grasshopper sparrow, loggerhead shrike or tricolored blackbird.	Preconstruction surveys for active nests will be conducted. No grading or habitat removal to take place until after breeding season.
Loss of 1.52 ha (3.76 ac) (29.2 percent) of mulefat scrub.	Formal wetland delineation must be conducted.
Loss of 0.77 ha (1.92 ac) (4.3 percent) of scalebroom scrub.	Mitigation identified above for riparian and mulefat habitat applies to these resources.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

Loss of 1.36 ha (3.37 ac) (34.0 percent) of open water.	
Fragmentation of amphibian, reptile and small mammal species populations.	Partially mitigated through design and construction of bridges at northernmost and southernmost segments of the primary alignment.
Loss of 1,052.22 ha (2,600 ac) of natural habitat would result in impacts on wildlife resources.	Approximately 647.52 ha (1,600 ac) of natural habitat in the study area will be preserved in permanent open space.
Loss of 26.49 ha (65.45 ac) of suitable habitat for the Orange County Turkish rugging, Blochman's dudleya, many-stemmed dudleya, sticky dudleya, Parry's tetracoccus and thread-leaved brodiaea.	Focused surveys for these species shall be conducted prior to plan approvals. Populations identified shall be avoided or transplanted to the natural open space areas.
Loss of known western spadefoot toad population and substantial loss of suitable habitat for the western spadefoot toad and Riverside fairy shrimp.	Focused survey for the Riverside fairy shrimp to be conducted. Avoidance and transplantation mitigation measures developed and implemented if needed.
	Focused surveys for the western spadefoot toad species to be conducted. Direct loss of individual toads can be mitigated by redesigning or by transplanting known populations.
Removal of habitat for 10 sensitive reptile species.	Evaluation of feasibility of avoiding sagebrush scrub on Chiquita Ridge and coast live oak woodlands within Area 1.
Loss of more than 1,052.22 ha (2,600 ac) of suitable habitat for the badger, San Diego black-tailed jackrabbit and northwestern San Diego pocket mouse.	Mitigation measures for sage scrub habitat apply here.
ARROYO TRABUCO GOLF COURSE	
Summary of Impacts	**Summary of Mitigation**
4.73 ha (11.7 ac) CSS impacted, resulting in a significant adverse impact on the California gnatcatcher.	Dedication of 145.29 ha (359 ac) of open space, including natural habitats and other land cover types. Mitigation ratio is 4.7:1 for CSS.
	Revegetation of 1.21 ha (3.0 ac) of CSS per revegetation plan.
	During construction, a monitoring program to be implemented for impacts to the California gnatcatcher, to include: - Grading limitations during breeding season. - Prior to commencement of grading operations or other soil disturbing activities all areas of CSS to be avoided by construction equipment and marked with temporary fence. - Survey conducted to locate gnatcatchers within 100 feet of project. - Erosion and sediment controls to be implemented during construction. - Monitoring biologist to be onsite during clearing of CSS. - Limitation of heavy construction within 300 feet of occupied habitat to periods outside breeding season. - Contractor education program conducted for personnel.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

	Brown-headed cowbird trapping program to begin the first spring following golf course construction for 20 years or until no cowbirds are trapped for five consecutive years or until an alternative cowbird control method can be used.
14.65 ha (36.2 ac) annual grassland, 6.1 ha (15.1 ac) valley needlegrass grassland and 3.8 ha (9.3 ac) of disturbed valley needlegrass impacted.	Dedication of 6.11 ha (359 ac) of open space, including natural habitats and other land cover types. Mitigation ratios are as follows: - 2.1:1 for valley needlegrass grassland. - 3:1 for disturbed valley needlegrass grassland.
	Revegetation of 7.37 ha (18.2 ac) of native grassland per revegetation plan.
0.085 ha (0.21 ac) of freshwater marsh and 0.31 acre of disturbed wetland disturbance.	Dedication of 6.11 ha (359 ac) of open space, including natural habitats and other land cover types.
	Revegetation of 6.48 ha (16.0 ac) of wetland and riparian habitat per revegetation plan.
5.02 ha (12.41 ac) of riparian habitat disturbance, resulting in significant impacts on the least Bell's vireo.	Dedication of 6.11 ha (359 ac) of open space, including natural habitats and other land cover types. Mitigation ratio is 8:1 for riparian.
	Revegetation of 6.48 ha (16.0 ac) of wetland and riparian habitat per revegetation plan.
	Construction monitoring program implemented for impacts to least Bell's vireo. Indirect impacts mitigated by limiting heavy construction within 91.44 meters (300 feet) of occupied habitat to periods outside breeding season. Erosion and sediment control during construction. Monitoring biologist onsite.
	Potential impacts from human intrusions to be controlled by installation of "barrier plantings," fencing and signage along trail and golf course. Control plan for human intrusion to be prepared and submitted.
	Brown-headed cowbird trapping program to begin the first spring following golf course construction for 20 years or until no cowbirds are trapped for five consecutive years or until an alternative cowbird control method can be used.
0.134 ha (0.33 ac) of sycamore trees disturbed.	Dedication of 6.11 ha (359 ac) of open space, including natural habitats and other land cover types.
	Revegetation of 6.48 ha (16.0 ac) of wetland and riparian habitat per revegetation plan.
Temporary disturbance of 2.63 ha (6.49 ac) of open water.	Dedication of 6.11 ha (359 ac) of open space, including natural habitats and other land cover types.
	Revegetation of 15.05 ha (37.2 ac) of various habitats.
Impact to 0.038 ha (0.095 ac) of ACOE jurisdictional waters/wetlands and permanent impacts to CDFG jurisdiction total 0.836 ha (2.065 ac.)	Implementation of revegetation program.
	Resource Management Plan prepared for review and approval prior to issuance of grading permit.
	Wetland creation areas will be monitored for five years to determine compliance with performance standards.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

DANA POINT HEADLANDS	
Summary of Impacts	**Summary of Mitigation**
Terrestrial Biological Resources Directly impact 32.05 ha (79.2 ac) of the project site, resulting in the loss of approximately 11.61 ha (28.7 ac) of sensitive vegetation communities that provide habitat for several sensitive wildlife species.	Implementation of the NCCP Guidelines under the Orange County Central/Coastal Subregion NCCP/HCP Program and Implementation Agreement, along with Project Conditions, will reduce impacts to sensitive wildlife species to less than significant. No mitigation required.
Directly impact 18.26 ha (45.11 ac) of Developed/Ornamental, 0.98 ha (2.42 ac) of Disturbed Ruderal, 0.23 ha (0.58 ac) of Disturbed Grassland and 0.67 ha (1.65 ac) of Disturbed Southern Needlegrass Grassland. Of the sensitive grassland on site, a total of 11.33 ha (28.0 ac) of coastal sage scrub, 0.74 ha (1.83 ac) of disturbed CSS, 0.247 ha (0.61 ac) of southern coastal bluff scrub will be impacted by the proposed project.	Implementation of the NCCP Guidelines under the Orange County Central/Coastal Subregion NCCP/HCP Program and Implementation Agreement, along with Project Conditions, will reduce impacts to sensitive habitats and sensitive plant species' habitats to less than significant. No mitigation required.
Indirect impacts to vegetation and wildlife due to excessive landscape irrigation, fuel modification, vegetation trampling outside of marked trails, introduction of non-native species, residential noise and lighting and temporary impacts to wildlife from construction activities.	Implementation of the NCCP Guidelines under the Orange County Central/Coastal Subregion NCCP/HCP Program and Implementation Agreement, along with Project Conditions, will reduce indirect impacts to vegetation and wildlife to less than significant. No mitigation required.
Impact two jurisdictional drainages totaling 0.023 ha (0.056 ac).	No significant; however, requires permits from the ACOE, CDFG and Regional Water Quality Board (RWQCB) as stated in the Project Conditions. No mitigation required.
Impacts related to species interactions and ecosystem function are offset due to the developer's participation in the NCCP/HCP.	Implementation of Project Design Features and Project Conditions addresses all impacts to terrestrial biological resources.
Impact up to ten individuals of Coulter's saltbush a sensitive plant on California Native Plant Society (CNPS) List 1B.	Prior to any site preparation, the project site shall be surveyed for the presence of extant individuals of Coulter's saltbush; the location shall be identified and fenced. Cuttings and seed collection shall be taken prior to translocation. Individuals shall be transplanted to suitable, protected areas on site in the Hilltop area and also in the Conservation Park. Applicant will ensure adequate funding for a botanist to monitor the translocation sites for a period up to five years. Also, the same protection measures shall be provided for individuals of Blochman's dudleya.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

The project, when combined with other proposed or approved projects in the region, contributes to cumulative impacts to terrestrial biological resources.	Prior to any site preparation, the project site shall be surveyed for the presence of extant individuals of Coulter's saltbush; the location shall be identified and fenced. Cuttings and seed collection shall be taken prior to translocation. Individuals shall be transplanted to suitable, protected areas on site in the Hilltop area and also in the Conservation Park. Applicant will ensure adequate funding for a botanist to monitor the translocation sites for a period up to five years. Also, the same protection measures shall be provided for individuals of Blochman's dudleya.
Marine Biological Resources Beach erosion from stormwater discharges.	Implementation of Project Design Features will reduce velocity of stormwater and minimize erosion; impacts will be less than significant. No mitigation required.
Minor change to physical characteristics of Strand Beach.	Implementation of Project Design Features will ensure no significant impacts to the beach. No mitigation required.
Discharge of runoff from storm drains.	Implementation of Project Design Features will reduce impacts to marine biological resources. No mitigation required.
Construction of the revetment structure may affect marine biological communities.	Implementation of Project Design Features will reduce impacts to marine biological resources. No mitigation required.
Increased usage of Dana Point Marine Life Refuge and Niguel Marine Life Refuge.	Implementation of Project Design Features will reduce impacts to marine biological resources. No mitigation required.
Lighting associated with the project may affect grunion attempting to spawn on Strand Beach.	Specification on allowable types of lighting for project facilities.
Cumulative effects on marine biological resources.	Implementation of Project Design Features will reduce cumulative impacts to marine biological resources. No mitigation required.
Coastal Processes New storm drain facilities.	Beneficial to water quality. No mitigation required.
Two new paths for public access to Strand Beach.	Very minor encroachment. No mitigation required.
Reconstruct existing revetment in back of Strand Beach.	Beneficial to public safety, public access, and will help prevent erosion and geologic instability. No mitigation required.
Construction of the revetment structure will not substantially change the physical characteristics of Strand Beach.	Implementation of Project Design Features will reduce potential beach erosion impacts and beach width or beach characteristics. No mitigation required.
Structural and nonstructural measures during construction and operation to reduce erosion and transport of soil material to the marine environment.	Implementation of Project Design Features will reduce potential beach erosion impacts. No mitigation required.
Potential for minor wave overtopping to occur under extremely rare conditions (every 500 years).	Implementation of Project Design Features will ensure that no significant impacts to property and risk to life from storm induced waves occur. No mitigation required.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

SADDLEBACK MEADOWS	
Summary of Impacts	**Summary of Mitigation**
Direct Impacts Total direct impacts to sensitive vegetation communities and habitats would be approximately 66.18 ha (163.52 ac). Approximately 0.587 ha (1.45 ac) of streambed under CDFG jurisdiction would be significantly impacted. Direct impacts would not occur to any federal or state listed endangered or threatened plant species. The Riverside fairy shrimp and western spadefoot toad would be impacted by impacts to a 0.162 ha (0.4 ac) ephemeral pond. There is potential for raptor species to nest in trees on site making active nests subject to the federal Migratory Bird Treaty Act.	Design features include the provision of a mitigation plan subject to the jurisdiction of the USFWS which has issued a biological opinion. The plan mitigates impacts to wetland/riparian habitat, sensitive upland habitats and wildlife movement. The plan also incorporates design and mitigation to allow wetlands preservation and replacement, and streambed and pond alteration and replacement. Surveys for raptors are required and if found a 91.44 meters (300-foot) noise buffer from construction work between December and June is required.
Indirect Impacts Indirect impacts could include habitat fragmentation, habitat insularization, edge effects, exotic species invasion, lighting, domestic pet intrusion/predation and increased human intrusion.	Mitigation measures include lighting shielding, fencing of special open space mitigation areas, and control of silt through grading management plan to protect the watershed, ephemeral ponds and wetland mitigation areas.
Cumulative Implementation of the proposed project in conjunction with other projects in the region would result in incremental cumulative impacts to: • Overall habitat loss and degradation; • Riverside fairy shrimp; • Jurisdictional areas; • Oak woodland; and • Wildlife movement.	A corridor to accommodate wildlife movement through the site has been included in the design of the project. Mitigation measures and design features reduce these impacts to less than significant.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Summary of Impacts	**Summary of Mitigation**
Fragmentation of ecosystems resulting from the incremental loss of native habitats.	Designation of 394.18 ha (974-ac) Habitat Preserve to ensure that development within the project area is compatible with the established Orange County NCCP.
	A wildlife corridor, connecting two preservation areas in the County, is proposed.
	The City of Irvine participates in the NCCP program and requires development to be in accordance with the NCCP.
RANCHO MISSION VIEJO	
Summary of Impacts	**Summary of Mitigation**
Potentially significant impact. Will be analyzed in the Draft EIR #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
Summary of Impacts	**Summary of Mitigation**
Coast live oak woodland, southern cactus scrub and mixed coastal sage scrub communities onsite represent sensitive communities. Direct and indirect impacts to these resources will result in cumulative, regional impacts.	Applicant shall have tree resources surveyed for active nest sites by a qualified biologist.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

The loss of habitat for many common species and at least 25 sensitive species is considered cumulatively significant.	A construction biologist shall be on-site to monitor all construction-related and resources management-related activities.
The project will contribute to cumulative impacts to jurisdictional waters, resulting in fragmentation of direct tributaries to Aliso Creek and potentially causing secondary effects to the upstream portion of the tributaries.	Obtain fill and streambed alternation permits from the ACOE and CDFG.
	Applicant shall demonstrate consistency the Foothill Trabuco Specific Plan (FTSP).
	Provide a minimum 7.62 meters (25-foot) buffer zone within the required 15.24 meters (50-foot) setback, of native shrubs and trees.
	Exterior lighting shall be prohibited within the 50-foot setback zone.
	Fencing in the 15.24 meters (50-foot) setback zone shall be limited to open fencing and does not exceed 101.6 cm (40 inches) in height above the finished grade.
	Prepare signage and buyer awareness program to inform homeowners of the proximity to sensitive wildlife areas.
	All residences, upon occupancy, shall be given brochures to inform them of the benefits, responsibilities and dangers associated with living close to natural areas.
	The applicant shall prepare a statement for homeowners in the sales disclosure statement and/or Covenants, Conditions, and Restrictions (CC&Rs) regarding the damage of invasive species.
	Tree management and preservation shall be conducted in consultation with the County.
	A tree restoration, preservation and management plan shall be prepared
	An International Society of Arborculture (ISA)-certified Arborist shall assess unanticipated tree-related issues, formulate a remedy and carry out the remedy.
	Measures to mitigate impacts to 1.74 ha (4.3 ac) of coastal sage scrub and scrub-chaparral ecotone on Saddle Crest will include the off-site acquisition and preservation of similar habitat at a ratio of at least 2:1.
	Section 7 Consultation process will address the impacts to approximately 14.16 ha (35-ac) of coastal sage scrub and scrub-chaparral. This may require on- or off-site preservation of similar habitat at a ratio of at least 2:1.
	Impacts to the approximately 8.5 ha (21-ac) of coastal sage scrub and scrub-chaparral ecotone may be addressed by: - Interim habitat loss 4(d) take permit. - Section 7 or Section 10a permit process. - If not considered occupied, off-site acquisition and preservation of similar habitat at a ratio of at least 2:1.
	Impacts to 6.07 ha (15-ac) of CSS and scrub-chaparral ecotone will be addressed through a Section 7 Consultation process. This may require on-or off-site mitigation of similar habitat of at least 2:1. A 4(d) interim habitat loss take permit may also be required.

TABLE 5.3-5
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO BIOLOGICAL RESOURCES

	Grading and Site Development Permit Applications shall contain identification of the limits of disturbance of CSS, native grasslands, oaks and oak woodland, riparian, streams, lakes, reservoirs, and basin habitats resulting from grading and construction-related activities and fuel modification plans.
	Prior to the issuance of a grading permit, the applicant shall obtain an approved 4(d) Interim Habitat Loss Permit and/or other written authorization from the USFWS and the CDFG.
	Prior to grading and construction activities, the limits of disturbance shall be staked and/or marked in the field consistent with the acreage amounts and limits of disturbance identified in the 4(d) Permit.
	Prior to construction activities, the County shall review all permit requirements.
	No gnatcatcher-occupied CSS removal/disturbance shall occur during the California gnatcatcher breeding and nesting season.
	The County shall be reimbursed 100 percent for all hours utilized monitoring project compliance with the NCCP program, state and federal agency permits, project conditions and associated CEQA mitigation measures.
	All state and federal permits shall be posted on the job site by the contractor and made available upon request to the County.
	Measures to mitigate impacts to needlegrass will include either off-site acquisition and preservation of habitat and/or revegetation on-site at a ratio of at least 1:1.
	Impacts to southern willow scrub will be addressed during the ACOE and CDFG permit process.
	Impacts to foothill mariposa lily and chaparral nolina will be mitigated with a mitigation plan prepared according to agency specifications.
	The impact to jurisdictional waters and wetlands is considered significant due to the fragmentation of direct tributaries to Aliso Creek and related habitat.
	The project's contribution to regional losses of coastal sage scrub, chaparral, and woodland habitats represents a cumulatively significant impact.
	Impacts to oak and sycamore trees and oak woodlands.
	The loss of habitat for many common species - at least 25 sensitive species (other than those listed as threatened or endangered) - is considered cumulatively significant.
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVELOPMENT - SAN JUAN CAPISTRANO	
Summary of Impacts	**Summary of Mitigation**
Possible sensitive plants, endangered species and heritage tree.	Surveys, replacement, avoidance, relocation and control of lighting.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Source: P&D Consultants, (2003)

Source: P&D Consultants, Psomas (2003).

SOCTIIP Alternatives in Relation to RMV Reserve Alternative B-4

Source: P&D Consultants, Psomas (2003).

SOCTIIP Alternatives in Relation to RMV Reserve Alternative B-8

TABLE 5.3-6
CONSERVATION OF BIOLOGICAL RESOURCES WITHIN THE SOUTHERN SUBREGION AND RANCHO MISSION VIEJO[1]

Alternative	Species									Habitats				
	California Gnat-catcher	Least Bell's Vireo	South-western Willow Flycatcher	Arroyo Toad	San Diego Fairy Shrimp	River-side Fairy Shrimp	Cactus Wren	Grass-hopper Sparrow	Historic Raptor Nest Sites	Coastal Sage Scrub	Chaparral	Grassland	Woodland	Riparian
Overall Southern Subregion														
B-1	85%	85%	100%	100%	25%	22%	91%	86%	86%	88%	85%	70%	85%	82%
B-2	82%	80%	71%	100%	75%	22%	89%	74%	81%	85%	83%	65%	82%	78%
B-3	74%	85%	100%	100%	75%	22%	78%	53%	78%	81%	78%	63%	78%	78%
B-4	**77%**	**83%**	**100%**	**100%**	**75%**	**22%**	**73%**	**46%**	**75%**	**79%**	**77%**	**60%**	**80%**	**75%**
B-5	73%	85%	100%	100%	75%	22%	77%	54%	76%	79%	76%	66%	76%	76%
B-6	81%	85%	100%	100%	75%	22%	81%	77%	79%	79%	76%	61%	77%	76%
B-7	77%	85%	100%	100%	75%	22%	78%	65%	78%	80%	76%	63%	77%	77%
B-8	**83%**	**87%**	**100%**	**100%**	**75%**	**22%**	**87%**	**85%**	**84%**	**84%**	**80%**	**68%**	**82%**	**79%**
Rancho Mission Viejo														
B-1	98%	97%	100%	100%	33%	50%	100%	85%	94%	99%	100%	90%	97%	98%
B-2	89%	87%	67%	100%	67%	50%	95%	79%	82%	91%	95%	75%	79%	88%
B-3	64%	97%	100%	100%	67%	50%	65%	53%	74%	80%	84%	71%	59%	88%
B-4	**73%**	**93%**	**100%**	**100%**	**67%**	**50%**	**52%**	**44%**	**68%**	**76%**	**83%**	**61%**	**70%**	**81%**
B-5	63%	97%	100%	100%	67%	50%	63%	55%	71%	74%	79%	79%	48%	83%
B-6	87%	97%	100%	100%	67%	50%	74%	83%	77%	77%	79%	63%	50%	84%
B-7	75%	97%	100%	100%	67%	50%	66%	68%	75%	76%	80%	69%	51%	86%
B-8	**91%**	**100%**	**100%**	**100%**	**67%**	**50%**	**89%**	**93%**	**86%**	**88%**	**88%**	**84%**	**79%**	**93%**

Notes: [1] Bolded alternates are discussed in text.

Source: These data were obtained from the South Orange County Coordinated Planning Process (2003). They represent the percentage of habitat conserved over the referenced planning area (Southern Subregion or RMV). Some of these alternatives have been rejected from further consideration by SOCCPP; however, they are retained for the perspective of the planning process.

Natural Environment Study (P&D Consultants, 2003).

TABLE 5.3-7
IMPACTS TO PLANT COMMUNITIES BY ULTIMATE ALIGNMENT IN THE RANCHO MISSION VIEJO STUDY AREA[1]
(Measurements are Percentages)

	Far East Corridor (FEC)		Central Corridor (CC)		Alignment 7 (A7C)	
Community[2]	FEC-W	FEC-M	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M
Venturan-Diegan Coastal Sage Scrub (2.3)	**0.578**	**0.701**	**1.189**	**1.189**	**0.779**	**0.066**
Other Scrub (2.1,2.4,2.7)	0.187	0.177	0.000	0.000	0.000	0.122
Coastal Sage Scrub/Grassland Ecotone (2,8)	**0.003**	**0.003**	**0.262**	**0.262**	**0.012**	**0.003**
Chaparral Communities (3.2, 3.3, 3.7, 3.12)	0.112	0.116	0.468	0.468	0.097	0.067
Native Grassland (4.2, 4.3, 4.4)	**0.009**	**0.170**	**0.084**	**0.084**	**0.023**	**0.013**
Annual Grassland (4.1)	0.303	0.552	1.490	1.490	0.685	0.142
Ruderal Grassland (4.6)	0.049	0.006	0.015	0.015	0.011	0.000
Vernal Pools, Seeps, & Wet Meadows (5.0)	**0.000**	**0.000**	**0.047**	**0.047**	**0.043**	**0.000**
Marsh Communities (6.0)	**0.000**	**0.000**	**0.094**	**0.094**	**0.061**	**0.000**
Riparian Communities	**0.205**	**0.100**	**0.107**	**0.107**	**0.044**	**0.111**
Woodland Communities	**0.194**	**0.163**	**0.160**	**0.160**	**0.047**	**0.086**
Lakes, Reservoirs, & Basins (12.0)	0.000	0.009	0.004	0.004	0.000	0.000
Water Courses (13.0)	**0.000**	**0.000**	**0.019**	**0.019**	**0.000**	**0.000**
Cliff and Rock Communities (10.3)	**0.000**	**0.000**	**0.025**	**0.025**	**0.000**	**0.000**
Agriculture (14.0)	0.937	0.873	0.376	0.376	0.343	0.480
Developed, Disturbed, Graded (15.0, 16.0)	0.159	0.220	0.219	0.219	0.134	0.069
Total	**2.736**	**3.090**	**4.559**	**4.559**	**2.368**	**1.186**

[1] Arterial Improvement Only (AIO) and I-5 Alternatives are outside of the Rancho Mission Viejo study area and, therefore, would not result in impacts to plant communities.
[2] **Bolded** text indicates communities that are sensitive.

TABLE 5.3-8
IMPACTS TO SENSITIVE PLANT SPECIES BY ALIGNMENT IN THE RANCHO MISSION VIEJO STUDY AREA

	FEC-W			FEC-M			CC- Complete			CC-ALPV			A7C-ALPV			A7C-FEC-M		
Rare Plant Species[2]	Populations	Individuals	Acres (hectares)	Populations	Individuals	Acres (hectares)	Populations	Individuals	Acres (hectares)	Populations	Individuals	Acres (hectares)	Populations	Individuals	Acres (hectares)	Populations	Individuals	Acres (hectares)
Coulter's saltbush (*Atriplex coulteri*)	1	6	0.002 (0.001)	2	9	0.022 (0.009)	2	600	0.103 (0.0412)	2	600	0.103 (0.042)	1	6	0.002 (0.001)	–	–	–
Thread-leaved brodiaea (*Brodiaea filifolia*)	–	–	–	1	21	0.013 (0.005)	–	–	–	–	–	–	–	–	–	–	–	–
Catalina mariposa lily (*Calochortus catalinae*)	3	116	1.010 (0.409)	3	67	1.021 (0.413)	7	210	0.32 (0.128)	7	210	0.320 (0.130)	5	149	2.035 (0.824)	2	20	0.132 (0.053)
Intermediate mariposa lily (*Calochortus weedii var. intermedius*)	1	20	0.980 (0.397)	1	70	0.980 0.397	3	693	0.369 (0.1476)	3	693	0.369 (0.149)	1	70	1.375 (0.556)	1	70	0.135 (0.055)
Southern tarplant ([*Hemizonia*] *parryi sp. australis*)	1	750	1.210 (0.490)	1	750	1.230 (0.498)	–	–	–				1	750	1.713 (0.693)	–	–	–
Prostrate spineflower (*Chorizanthe procumbens*)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Many-stemmed dudleya (*Dudleya multicaulis*)	7	1,620	1.136 (0.460)	7	1,620	1.230 (0.498)	15	1,144	1.147 (0.4588)	15	1,144	1.147 (0.464)	4	655	1.523 (0.616)	2	81	0.151 (0.061)
Beaked spikerush (*Eleocharis rostellata*)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Palmer's grapplinghook (*Harpagonella palmeri*)	–	–	–	–	–	–	–	–	–				1	1,092	0.058 (0.023)	–	–	–
Hedge-leaved horkelia (*Horkelia cuneata ssp. cuneata*)	–	–	–	–	–	–	–	–	–				–	–	–	–	–	–
California juniper (*Juniperus californica*)	–	–	–	–	–	–	1	1	0.016 (0.0064)	1	1	0.016 (0.006)	–	–	–	–	–	–
Small-flowered microseris (*Microseris douglasii var. platycarpa*)	–	–	–	–	–	–	–	–	–				–	–	–	–	–	–
Salt spring checkerbloom (*Sidalcea neomexicana*)	–	–	–	–	–	–	–	–	–				–	–	–	–	–	–
Total	**13**	**2,512**	**4.338 (1.757)**	**15**	**2,537**	**4.496 (1.820)**	**28**	**2,648**	**1.955 (0.782)**	**28**	**2,648**	**1.955 (0.791)**	**13**	**2,722**	**6.706 (2.714)**	**5**	**171**	**0.418 (0.169)**

[1] Source: Psomas GIS data maps (2003).

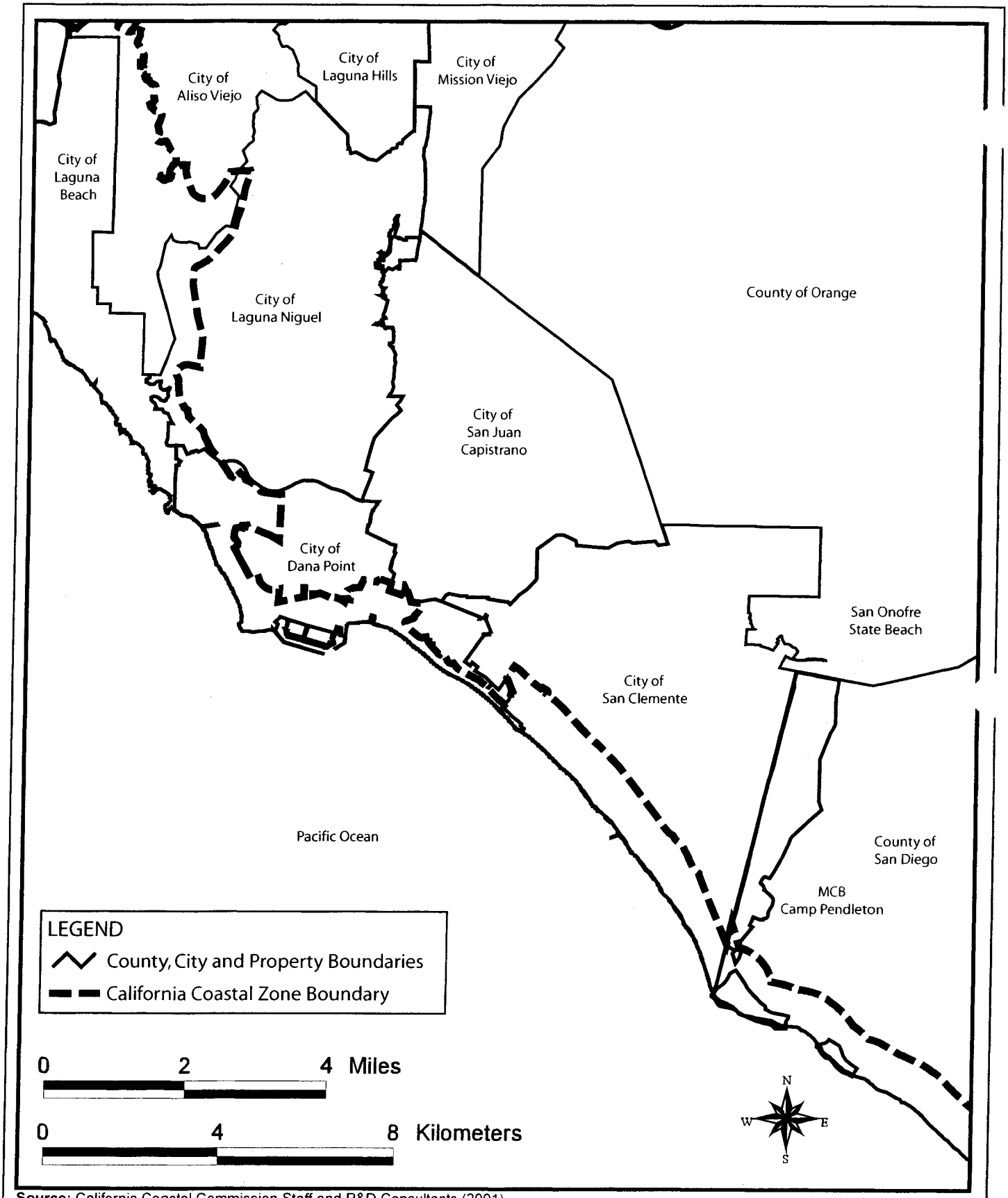
[2] Number of populations and estimate of number of individuals of sensitive species located within Ranch Mission Viejo study area. Other sensitive species listed in Table 5.3-1 were not located during the field reconnaissance.

Numbers should be used for comparing alternatives, since population numbers will change annually due to climatic changes.

[3] Total number of populations recorded in California

[4] Total populations in Orange County and Camp Pendleton combined Source: California Natural Diversity Database April 9,2003

N/A Populations not listed in CNDDB



Source: California Coastal Commission Staff and P&D Consultants (2001)

California Coastal Zone Boundary in the SOCTIIP Study Area

TABLE 5.3-9
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HISTORIC AND ARCHEOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Information not provided.	--
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE)	
Potential to directly impact 21 archaeological sites and 10 historic sites, potential for five additional archaeological sites indirectly impacted.	Investigation to be conducted by archaeologist. Resource management program to be developed pursuant to investigation.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Potential to disturb archaeological resources.	In the event potential resources are discovered, notifications and investigations are to be made.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Known and potential archaeological resources could be disrupted or removed as a result of landfilling improvements and uses.	An archaeologist will prepare Testing, Monitoring and Salvage Program for Archaeological Resources.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
Some archaeological sites will be impacted by construction activities. There are no known historic resources impacted by these projects.	Impacts on archaeological resources are anticipated to be mitigated to a less than significant level. No mitigation is required for historic resources.
WHISPERING HILLS PLANNED COMMUNITY	
Proposed Project/356 du: Construction could potentially impact unknown archeological resources.	An archaeologist will be onsite during all grading excavation operations and other significant ground disturbing activities.
	If archaeological resources are discovered during construction, the site area shall be secured and the City notified.
	A Final Archaeological Report shall be prepared by the project archaeologist and submitted to the Planning Department.
Construction could potentially impact unknown human remains.	A mitigation monitoring program shall be submitted to the Planning Department to address the accidental discovery of human remains.
High School/193 du Alternative: Same as Proposed Project/356 du impacts.	Same as Proposed Project/356 du mitigation measures.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
Potential to disturb archaeological resources.	Monitoring by archaeologist during initial grading.
MARBLEHEAD COASTAL	
Potential destruction of archaeological resources by grading and/or excavation.	Artifact and/or fossil preservation plans to be approved prior to issuance of rough grading permits.
PACIFIC POINT/SAN JUAN MEADOWS	
Four archaeological sites were previously identified and the probabilities of resources to exist are moderate to high.	Archaeological monitors for grading activities and reports on findings.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Eight known archaeological sites and a cave are located within the site or in close proximity.	Archaeologist will investigate site, conduct salvage excavation and survey cave interior. Native American burial site circled with protective fencing.
Potentially significant impact on 22 cultural resource sites.	Archaeologist retained for investigations and surveillance.

TABLE 5.3-9
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HISTORIC AND ARCHEOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
One historic resource within boundary of planning area.	Historian to be retained to catalogue and coordinate the removal and preservation of any old farm equipment of significance that is recovered.
ARROYO TRABUCO GOLF COURSE	
Grading and excavation could impact unknown archaeological resources.	Archaeologist to be retained to observe grading activities and salvage and catalogue resources as necessary.
DANA POINT HEADLANDS	
Grading may expose unknown subsurface sensitive archaeological resources. In addition, the San Onofre Breccia may be exposed during grading, resulting in potential impacts to the fossiliferous fine grained facies.	A qualified archeologist approved by the City of Dana Point shall be present at pregrade conferences, available to conduct random checks of graded areas and provide field assessment and recommendation for disposition should unique cultural materials be unearthed.
	Submit written evidence to City that a certified archaeologist has been retained to observed grading and to salvage and catalog resources, if necessary.
	If unique archaeological resources are unearthed, the Director of Community Development will determine whether studies or testing of the potential site have adequately recovered the scientifically consequential information about the unique archaeological resource. The archaeologist will submit a follow-up report including the period of inspection, cataloged and analysis if artifacts found and a repository listing for each of the found items.
	If human remains are encountered, no further disturbance of the site shall occur until the County Coroner has made a determination of origin and disposition. If the remains are determined to be prehistoric the Coroner will notify the Native American Heritage Commission (NAHC) which will determine a Most Likely Descendant (MLD). The MLD, with permission of the land owner may inspect the site within 24 hours of notification by the NAHC. And may recommend scientific removal and nondestructive analysis of human remains and items associated with the Native American burials.
SADDLEBACK MEADOWS	
Grading may expose unknown subsurface sensitive archaeological resources.	A certified archeologist shall be present at pregrade conferences, will monitor grading activities, available to conduct random checks of graded areas and provide field assessment and recommendation for disposition should unique cultural materials be unearthed.
	If human remains of Native America origin are encountered during the project, the County Coroner's office and the Native American Heritage Commission shall be contacted for preservation and protection of the remains.
Two cultural resources sites are within the project limits.	One site will be salvaged, recorded and catalogued by a certified archeologist and the other will be preserved in place.

TABLE 5.3-9
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HISTORIC AND ARCHEOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Grading activities associated with future development may cause a substantial adverse change in the significance of an archaeological resource.	Prior to subdivision for development, a detailed archaeological report(s) shall be prepared within PAs 51 and 30 addressing the potential for encountering archaeological resources at the time specific development is proposed. The report shall provide recommendations to prevent degradation of archaeological resources.
	Monitoring of excavation and grading activities associated with future development in PAs 51 and 30 shall be conducted by a certified archaeologist. If resources are encountered during ground disturbance, the archaeological monitor shall halt grading and initiate an archaeological testing program.
	Prior to issuance of grading permits and/or building permits for any future development in PAs 51 and 30, a detailed mitigation monitoring program shall be submitted by the applicant to the City of Irvine to address archaeological resources discovered during grading.
Grading activities may uncover unknown human remains, including those interred outside of formal cemeteries.	Prior to issuance of grading permits and/or building permits, a mitigation program shall be submitted by the developer to the City of Irvine to address the accidental discovery or recognition of any human remains.
RANCHO MISSION VIEJO	
Potentially significant impact. Will be analyzed in EIR #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
The structures and resources that comprise CA-ORA-1518H, Primary No. 30-176627 (Watson Ranch) and Primary No. 30-176628 will be demolished with implementation of the proposed project.	Copies of the *Historic Resources Technical Report, Saddle Creek and Saddle Crest Properties (*October 21, 1999) by the Building Biographer, Tim Gregory, shall be furnished to the History Room of the Santa Ana Public Library, the Orange County Archives, and the County of Orange's HBP/Historical and Cultural Programs.
SADDLE CREEK The following identified archaeological resources will be impacted: • CA-ORA-1519. Prehistoric lithic quarry. • CA-ORA-1518H. Single-family residence, a privy, two sheds, and remains of a windmill water-pump within the 4S-Ranch (south) property. • CA-ORA-1517. A scatter of ground stone implements and chipped stone cores. • Primary No. 30-176627. Historical resources at the Watson Ranch, including a single-family residence, a barn, a storage shed, water tanks, and a free-standing barbecue.	If avoidance of CA-ORA-1519, CA-ORA-1250, CA-ORA-1522, and CA-ORA-1517 is not possible, a Phase 2 evaluation of these sites shall be conducted. A collection shall be made of the diagnostic historic artifacts at CA-ORA-1518H. All recovered artifacts and ecofacts shall be cataloged and analyzed, and special studies shall be undertaken if the recovered cultural remains warrant such studies.
• Primary No. 30-176628. Historical resources, including a single-family residence, office structure, stone reservoir, barbecue, bunkhouse, barn and poultry and animal sheds and pens.	The milling stones and other artifactual material on or in the wall at CA-ORA-1518H shall be collected and used for display or educational purposes.

TABLE 5.3-9
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HISTORIC AND ARCHEOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
CA-ORA-1517 and -1519 are prehistoric lithic sites. The extent of these resources or potential impact cannot be determined without subsurface excavation. Since the project site is in a highly sensitive area for prehistoric cultural resources, additional unidentified archaeological remains could be present and potentially impacted by the modified Proposed Project.	
Saddle Crest The project will impact the following identified archaeological resources: • CA-ORA-1250. Scatter of ground stone and chipped lithic material next to an historic open mining trench. • CA-ORA-1522. A mano and dispersed scatter of lithic reduction material. • CA-ORA-1523H. An historic period mine (Serrano Clay Mine). • CA-ORA-1521H. An historic period mine (Shoepe Clay Mine).	
CA-ORA-1250 and -1522 are prehistoric lithic sites. The extent of these resources or potential impact cannot be determined without subsurface excavation. Since the project site is in a highly sensitive area for prehistoric cultural resources, additional unidentified archaeological remains could be present and potentially impacted by the modified Proposed Project. Both Serrano and Shoepe Clay Mines within the Saddle Crest project area would be disturbed by the proposed project.	
Cumulative: Cumulative impacts of the loss of project site resources in conjunction with the potential loss of other area resources could result in the loss of significant resources that define and contribute to California's history and/or cultural heritage.	
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
Impacts to one historic structure.	Preconstruction survey and providing official historic record and cataloging of the historic structure.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.
1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Source: P&D Consultants (2003).

TABLE 5.3-10
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HAZARDS AND HAZARDOUS MATERIALS

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY	
No information provided.	--
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS)	
San Diego pipeline traverses Talega.	Prior to approval of subdivision maps, maps at a 1:400 scale to be provided depicting proposed alignment of 16-inch pipeline and existing 10-inch pipeline.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL).	
No information provided.	--
PRIMA DESHECHA SANITARY LANDFILL (GENERAL DEVELOPMENT PLAN).	
Hazardous materials improperly brought to landfill.	Traffic control limiting access of vehicular traffic to landfilling areas.
Incomplete separation of refuse vehicles and biosolids disposal from recreational visitors (associated with future recreation uses on the landfill site).	Prior to opening any recreation uses on-site, development and implementation of on-site operating procedures that separate recreation users and trash vehicles as they enter the site and no members of the public allowed access to landfill.
Disposal of automobile shredder waste (ASW).	Maintain and implement operating procedures for acceptances and disposal of non-hazardous ASW.
Hazardous waste from on site maintenance of landfill vehicles.	Continue to maintain operating procedures for safe handling and removal of waste oil and other potentially hazardous materials.
Potential explosion, fire or personal exposure to hazardous materials or accumulation of landfill gas.	Maximize protection to workers consistent with all applicable state and federal regulations.
Potential fire and fire safety impacts. Potential fire risks associated with public access.	Ensure construction of permanent structures with enclosed spaces on landfilled areas will not occur unless the building is designed with protection from migrating landfill gas approved by Solid Waste Local Enforcement Agency (LEA).
	Maintain on site operating procedures for the avoidance and control of surface fires.
	Placement of fire warning signs along public roadways.
	Implementation of safe working practices regarding potential for surface fires associated with construction equipment and personal vehicles
Impacts associated with generation and surface migration of landfill gas (LFG).	Continue to ensure design and operation of landfilling activities include a LFG control system.
Presence of breeding mosquitos, flies and rodents.	Periodic monitoring for presence or potential presence of vectors. Implement vector control procedures and implement alternate, updated or new vector control procedures as requested by the LEA.
Potential vector nuisance associated with bodies of standing water.	Identification of specific measures to remedy standing bodies of water.
Potential vector nuisance associated with on site wastes during grubbing, clearing and construction activities.	Final construction plans to reflect specific measures that will be implemented during site clearing activities and measures to properly collect and dispose of construction wastes.
Potential health threat associated with possible hantavirus-infected deer mice.	Determination of existing species on property which have potential to carry/transmit the hantavirus. If warranted, specific vector control measures shall be identified, approved and implemented.

TABLE 5.3-10
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HAZARDS AND HAZARDOUS MATERIALS

Summary of Impacts	Summary of Mitigation
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
No information provided.	--
WHISPERING HILLS PLANNED COMMUNITY	
A small surface stain on-site could be hazardous material or contaminated soil.	Identified stained soil shall be tested and remediated, if necessary.
The site may be impacted by LFG generated by the Prima Deshecha Landfill.	Homes within 304.8 m (1,000 ft) of Prima Deshecha Landfill will include systems to prevent methane-related hazards. Landfill records will be reviewed for groundwater monitoring well data, air sampling data and known soil data.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
No information provided.	--
MARBLEHEAD COASTAL	
No information provided	--
PACIFIC POINT/SAN JUAN MEADOWS	
No information provided.	--
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Possible unidentified contamination occurrence in nurseries and agricultural fields.	Evaluation and remediation plan to be submitted if required.
Two underground fuel jet pipelines traverse land development.	
Two petroleum exploration wells are located within land development area.	Well abandonment documentation to be provided prior to recordation of final map or issuance of grading permit.
	Permit required for property within 91.4 m (300 ft) of any oil well prior to recordation of final map or issuance of grading permit and testing shall be conducted for the potential of methane gas migration.
	Prior to approval of first grading permit, submittal of design for barriers to public access to an exploratory oil well.
ARROYO TRABUCO GOLF COURSE	
The proposed project would not result in significant adverse impacts related to hazardous materials.	No mitigation required.
DANA POINT HEADLANDS	
Remediation and disposal of the trailer park and nursery facilities could, if uncontrolled, result in upset or accident conditions.	Implementation of Project Condition 6-1 would reduce impacts to below a level of significance. No mitigation required.
The northern boundary of the site is within 0.4 km (0.25 mi) of the grounds of Richard Henry Dam Elementary School.	Implementation of Project Condition 6-1 would reduce impacts to below a level of significance. No mitigation required.
Prior to the start of construction, demolition and cleanup, potentially hazardous materials must be removed from the site as recommended in the Phase I study.	If hazardous materials are determined to be onsite, removal of contaminated soils or materials will be removed prior to issuance of the grading permits.
SADDLEBACK MEADOWS	
No impacts related to hazards or hazardous materials.	No mitigation required.

TABLE 5.3-10
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO HAZARDS AND HAZARDOUS MATERIALS

Summary of Impacts	Summary of Mitigation
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Structures on the project site and portions of the project site are contaminated with hazardous materials by past military uses, such as asbestos and lead-based paint. Other hazards exists on the site, such as hazardous material deposits.	Prior to the conveyance of property and issuance of subsequent grading permits, where the presence of asbestos is identified, the DON shall ensure that all available information has been provided to the City. The DON shall ensure that all asbestos removal complies with applicable federal, state and local requirements.
RANCHO MISSION VIEJO	
Will be analyzed in EIR #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
Wildland fires. Health Hazards Due to the proximity of the project site to extensive open space, topography, and vegetation, the site and surrounding area may support suitable habitat for the black-legged tick and deer mouse. **Cumulative:** Implementation of the modified proposed project in a Special Fire Protection Area has the cumulative potential impact of increased fire frequency and increased exposure for property loss and human risk during wildland fires in the project vicinity.	With incorporation of project design features, impacts are less than significant. No mitigation required.
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
Possible hazardous material on the site.	Standard mitigation for the handling and storage of hazardous materials, soils testing, lead, asbestos containing materials and leaky electrical transformers (PCBs).

Hazardous Materials and Wastes Technical Report (P&D Consultants, 2003).

TABLE 5.3-11
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO AESTHETICS AND VISUAL RESOURCES

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Summary of Impacts	**Summary of Mitigation**
Significant landform changes.	Landscaping provided throughout development, architectural design guidelines established and prominent natural features maintained where feasible.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE)	
Significant landform alteration.	Landscaping provided throughout development and structures not to project above ridge silhouette from City-designated viewpoints.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Short term impacts during construction.	No mitigation.
Tennis and stadium lighting.	Lighting to be designed and tested to ensure that light spill does not exceed standard specifications.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Landfill buildings, operations and topography changes visible from off-site vantage points and recreational areas. Background views of La Pata Avenue and recreational roads visible from outside the site.	Plantings will be integrated to screen undesirable views. Structures to be visually unique in apparent size and quality and should blend with the surrounding natural environment.
Visibility of landfill areas from off site viewsheds and/or protected ridgelines.	Facilities to be sited to minimize visibility from beyond the site.
Ridgeline impacts from structures for circulation and roadway uses.	Natural horizon line in existing landscape not to be interrupted by circulation and road structures.
Off site light and glare impacts.	Lighting design schemes to minimize potential glare. Lights to be no more than 12.2 m (40 ft) in height. Light fixtures to be hooded and contain direct cutoff refractors to concentrate lighting on site and minimize potential spill of light.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
Projects may result in significant adverse impacts on aesthetics as natural open areas are converted to urban and semi-urban land uses. Impacts on land views could be significant. Combined visual impacts on night-time ambient light conditions anticipated to be significant from required lighting for traffic circulation.	No information provided on mitigation measures.
WHISPERING HILLS PLANNED COMMUNITY	
Proposed Project/356 du: Visual encroachment upon a General Plan-designated ridgeline.	Design standards shall be incorporated into finish grading to minimize visual impacts.
High School/193 du Alternative: Grading within 15.24 m (50 ft) of a General Plan-designated ridgeline.	Design standards shall be incorporated into finish grading to minimize visual impacts.
Significant new sources of light and glare as a result of sport field and parking area lighting.	Lighting systems shall be designed such that 60 percent of the total light output is in the lower portion of the projected light below the maximum candlepower point and thereby directed onto the field to be illuminated.

TABLE 5.3-11
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO AESTHETICS AND VISUAL RESOURCES

Summary of Impacts	Summary of Mitigation
	Light onto adjoining areas and into sky will be restricted and will meet the same criteria as above.
	Light as views from off-site locations will be controlled using the same criteria as above.
	Design Scheme "L" which places the stadium substantially behind the existing knoll will be utilized to provide light and glare screening.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
Interruption of ridgeline views.	Primary ridgelines' natural contours and vegetation to remain intact. Minimum horizontal setback of 60.96 m (200 ft) on each side of ridgeline (exception of Camino Vera Cruz).
Alteration of topography.	Development in hillsides to conform to the City's Hillside Development Ordinance. Inclusion of landscape plans for graded areas.
MARBLEHEAD COASTAL	
Intrusive ambient light conditions from potential park improvements and ballfield lighting on the Shorecliffs Middle School site.	Conditional Use Permit required. Notification to prospective home buyers on Marblehead Coastal site.
PACIFIC POINT/SAN JUAN MEADOWS	
Significant visual impacts.	Las Ramblas to avoid bulky elements, walls to match walls of adjacent development, adequate and appropriate landscaping. Window Hill's structures not to be placed along highest ridge, create naturally-appearing features along crest, implement contour undulation and variable slopes, avoidance of unbroken two-story expanses, avoidance of structures that climb the hill, use of low wattage lighting and of adequate and appropriate landscaping. The Valley to use low, horizontal facades, slope contour grading, blend edges, use round berms and perimeter landscaping, use earthtones for roof materials and residential areas and limit pad grading. Lower slope to have low, horizontal facades, blended edges of proposed site with open space and use of round berms and perimeter landscaping. Underground reservoir to use low, variable berming, slope grading techniques, revegetation of grading activities, preserve natural vegetation wherever possible and revegetative trenches for water main placement.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Visual impacts due to construction and land development.	Landscape plan integrated.
ARROYO TRABUCO GOLF COURSE	
Significant adverse landform or aesthetic impacts.	No mitigation required.
DANA POINT HEADLANDS	
No significant adverse visual impact.	No mitigation required.

TABLE 5.3-11
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO AESTHETICS AND VISUAL RESOURCES

Summary of Impacts	Summary of Mitigation
Increase light and glare intensity.	Implementation of Project Design Features will reduce impact to less than significant level. No mitigation required.
On-site construction activity and open unplanted earth will be visible from surrounding land uses and publicly accessible viewpoints.	Screened fencing will be installed during construction activities.
SADDLEBACK MEADOWS	
Substantial landform alteration, impact to viewshed and light and glare impacts.	Implementation of the ten design features of the project address light and glare and impacts to viewshed to a less than significant level. No mitigation is required.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Introduction of new light and glare sources in the project area.	Lighting and signage plans shall be designed to ensure minimal light intrusion and spillover into residential areas. Buildings shall be designed to reduce glare impacts.
RANCHO MISSION VIEJO	
Potentially significant impact. Will be analyzed in the Draft Environmental Impact Report (EIR) #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
No significant impact to aesthetic resources.	No mitigation measures are necessary.
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
Temporary construction impacts. No long term impacts.	Design and compliance with existing aesthetic policies.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Visual Impact Assessment Technical Report (P&D Consultants, 2003).

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Significant and permanent alteration of existing landforms. 11.5 to 13.8 million cubic meters (cm) (15 to 18 million cubic yards (cy)) of earthwork for mass grading.	Prior to approval of Site Development Permit, conceptual grading plan to be submitted for approval with haul routes included.
	All slopes designed at 2-horizontal to 1-vertical or flatter.
	77 percent of property to be in some form of open space and recreation.
	Incorporated open space and scenic easements for ridgeline/view protection.
	Prominent natural features to be maintained in a natural state and incorporated into the landscape concept.
Potential hazards to property and life from possible future slope failures.	Conform to general recommendations presented in the geotechnical studies.
	Mitigation to be assessed and recommended by a qualified Engineering Geologist.
	Prior to recordation of the final tract map, rough grading plans to be approved.
	Prior to grading permit issuance, a precise grading plan will be approved.
	Prior to approval of Site Development Permit, conceptual grading plan to be submitted for approval including erosion, salutation and dust control plans included.
	All slopes designed at 2-horizontal to 1-vertical or flatter.
Site subject to seismic hazards.	Conform to general recommendations presented in the geotechnical studies.
	Prior to recordation of the final tract map, rough grading plans to be approved.
	Prior to grading permit issuance, a precise grading plan will be approved.
	Prior to approval of Site Development Permit, conceptual grading plans to be submitted for approval.
Potential increase in on site groundwater levels.	Conform to general recommendations presented in the geotechnical studies.
	Mitigation to be assessed and recommended by a qualified Engineering Geologist.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE)	
Potential constraints and impacts include slope instability, problematic soil conditions, seismic activity, poor rippability of bedrock materials and erosion.	Conform to general recommendations presented in the geotechnical studies.
	Submittal of conceptual grading plan prior to approval of a tentative map.
	Approval of rough grading plan prior to approval of the final tract map. Rough grading plans to include erosion, siltation and dust control plan to be approved by the Community Development Department of the City and the County.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
	Approval of precise grading plan prior to building permit issuance.
	All grading plans to conform to City Hillside Development Ordinance.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Subjection to erosion, landslides and runoff impacts.	Prior to commencement of grading, a final project design plan to be prepared.
	Compliance with National Discharge Elimination System requirements of the California Regional Water Quality Control Board.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Landslide and mudslide activity during excavation period.	Geotechnical investigation to be done prior to designing each phased landfill plan.
	For each phased grading plan, the excavation and grading plan shall ensure the stability of all cut, fill and lined slopes.
	Ensure that the final design incorporates removal of all highly disturbed landslide debris prior to placement of fill.
Exposure to seismic activity.	Demonstration that landfill design plans comply with the state and federal seismic requirements.
	Prior to commencement of daily excavations for borrow material, grading plans shall be prepared, analyzed for slope stability and submitted for approval.
	Assumptions, methods and calculations used to demonstrate seismic safety to be presented.
Differential settlement associated with compression and decompression.	Assumptions, methods and calculations used to demonstrate that differential settlement of the site will not result in future environmental impacts is to be presented.
Demand for soil to be used as cover material.	Assumptions, methods and calculations used to demonstrate that the excavation plans provide for sufficient quantities and sources of suitable soils or alternative cover systems are identified.
Leachate migration into groundwater.	Continued leachate control operation.
	Continued groundwater monitoring operation.
	Presentation of assumptions, methods and calculations used to predict leachate generation and sizing of the components of the leachate collection system.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
No information provided.	--
WHISPERING HILLS PLANNED COMMUNITY	
Proposed Project/356 du: Moderate or high risk potential for expansive/erosive soils, seismic ground shaking, liquefaction and landslides.	Implementation of all recommendations in Leighton 2001 and the Third Party Geotechnical Review.
Grading within a General Plan-designated ridgeline.	Incorporate design techniques into finish grading consistent with the requirement of the San Juan Capistrano General Plan and Land Use Code.
High School/193 du Alternative: Same as Proposed Project/356 du Impact.	Same as Proposed Project/356 du Mitigation Measures with additional subsequent design-level geotechnical studies.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
No information provided.	--
MARBLEHEAD COASTAL	
Significant geotechnical impacts.	Recommendations in the geotechnical report to serve as definitive guide to specific site planning.
PACIFIC POINT/SAN JUAN MEADOWS	
Elimination of some prime agricultural soils.	Property is not presently in an agricultural use and loss of these soils is not considered significant.
High potential for soil failure.	Grading in accordance with geotechnical report.
	Preparation of geotechnical grading plan.
	Site stabilization prior to development.
	Measures to minimize erosion.
	Cut and fill slope gradient consistent with geotechnical investigation recommendations.
	Cut and fill ratio required to minimize the amount of imported/exported soil to be determined prior to issuance of a grading permit.
	Soils subject to settlement to be removed prior to fill placement or compacted in place.
	Conformance with the Uniform Building Code (UBC) and appropriate City codes and standards.
Potential seismic activity.	Analysis of potential seismic effects on site to be prepared and submitted.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Significant impacts to landform alterations. Landslide and erosion hazards. Areas non-suitable for the support of compacted fill, roadway improvements, or structures. Location within seismically active region.	Prior to issuance of grading permits, a geotechnical report to be reviewed and approved. Engineering geologist to make recommendations to provide adequate vertical and lateral support for Antonio Parkway alignment.
ARROYO TRABUCO GOLF COURSE	
Reduction in the long term availability of sand and gravel resources.	No mitigation recommended, impact remains significant.
DANA POINT HEADLANDS	
Soil subsidence may result from inadequate preparation and compaction of soils prior construction of building and facility foundations.	Implementation of Project Condition 5-1 and any specific recommendations by geotechnical consultant regarding grading, soil compaction and site preparation will ensure that no potential impacts to facilities from soil subsidence. No mitigation required.
Potential impacts resulting from seismic induced ground shaking.	Implementation of Project Conditions 5-1, 5-2, 5-3 and 5-4 will reduce the potential impact of seismic induced ground shaking to below a level of significance. No mitigation required.
The high, steep cliff faces that rim the Dana Point Headland present a relatively high potential for seismically induced rockfall and possibly local shallow landsliding of the bluff.	Implementation of Project Design Feature 5-1 and Project Conditions 5-1, 5-2, 5-3, 5-4, 5-5 and 5-6 will reduce the potential impact of seismically induced ground failure to below a level of significance. No mitigation required.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
Local areas of loose sand are present on site and subject to liquefaction if these materials become submerged or exposed to strong ground shaking. Near surface soils and undocumented fill, present in some areas, may potentially be subject to seismically induced ground settlement.	Remove unconsolidated soil and unknown fill and replace with compacted fill and incorporate appropriate subsurface drainage system.
Strong ground shaking could potentially induce landslides.	Redistribute the mass/forces acting on the landslide, lower and maintain the groundwater/pore pressure at levels that enhance the stability conditions with the installation of subdrain system and remove and replace appropriate portions of the landslide deposits with higher strength compacted fill.
Graded areas may be subject to erosion during construction and operation.	Surficial stability/erosion potential will be evaluated by a geotechnical consultant. Best Management Practices will be employed during construction to minimize potential for erosion. Landscaping shall be installed particularly in the graded slopes.
The project may be subject to slope and/or foundation instability due to landslides; slope and/or foundation instability due to grading of cut slopes; slope and/or foundation instability due to the proposed grading of fill slopes; and slope and/or foundation instability due to compressible soils.	Temporary cut slopes shall not exceed a gradient of 1:1 and shall be reviewed by the Project Geotechnical Consultant during excavation. Temporary cut slopes associated with remedial grading in the Strand Beach area, landslide removals, shall not exceed a gradient of 1.5:1 and shall more typically maintain a maximum gradient of 2:1. Local groundwater or other geologic conditions may require flattening, dewatering or installation of appropriate slope reinforcement. Additional geotechnical review shall be performed as part of the final design process. The cut and fill slope at the southeastern perimeter of the Upper Headlands area shall be specifically evaluated for possible overexcavation and construction of a fill blanket and/or a "loffel-type" landscaping wall.
	Unreinforced fill slopes shall not exceed a gradient of 2:1. Proposed fill slopes steeper than 2:1, including MSE walls/slopes, shall require site specific reinforcement design. Appropriate subdrain provisions shall be incorporated into slope designs. Additional geotechnical review shall be performed as part of the final design process.
	All existing undocumented fill within the proposed development area shall be removed and replaced as compacted fill. Additional geotechnical review shall be performed as part of the final design process.
Possible moisture/surface seepage related problems may occur. Possible slope and/or foundation instability may occur due to presence of uncontrolled groundwater levels/flows.	Install appropriate subdrains behind fill slopes and retaining walls as determined in the final geotechnical report.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
Expansive soils exist on site that may produce slope and/or foundation instability.	Grading will strive to construct relatively uniform soil conditions in the upper portion of the building areas and incorporate recommended moisture levels. Moderate level of moisture shall be maintained in the fill/foundations soils to minimize future volume changes.
SADDLEBACK MEADOWS	
Grading/Landform Alteration: Substantial grading, remedial grading and landform alteration. Seismic: Project site includes unstable landslides, expansive soils, bedrock, unconsolidated alluvium and groundwater.	Remedial grading plan to address slope stability and landslides. Project includes 36 mitigation measures addressing grading, compaction, fill material selection, fill shrinkage/subsidence, excavating conditions, fill expansion potential, utility trenching, surface drainage, sulphate content, engineering monitoring, slab specification, foundation specification, long term fill settlement and earthwork phasing.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Exposure of people or structures to strong seismic ground shaking.	Prior to issuance of a building permits, the City of Irvine shall require that all development be designed in accordance with the seismic design provisions outlined in future proposed development geotechnical reports and specified in the latest City Building Codes.
Expansive soils may be present in localized areas within the project area.	Prior to issuance of a building permits, geotechnical reports shall be prepared for specific development projects.
The existing building on the former MCAS El Toro site my not have been constructed in a manner that is acceptable for its intended use. Temporary or permanent reuse of these facilities could expose people to greater seismic risks.	Prior to the issuance of building permits for the occupancy of any existing structure or occupancy of any existing if a building permit is not issued, a seismic evaluation of the structure including recommendations for seismic improvements required for compliance with current Building Codes.
Potential for soil erosion impacts. The presence of expansive soils could create risks to people or property.	Prior to issuance of grading permits, detailed geotechnical and hydrology reports shall be prepared prior to any development approval or grading activities.
RANCHO MISSION VIEJO	
Potentially significant impact. Will be analyzed in EIR #589.	If necessary, will be provided in Draft EIR #589.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
SADDLE CREEK/SADDLE CREST	
Grading/Landform Alteration 1,311,946 cm (1,715,960 (cy) cut and 1,213,264 cm (1,586,890 cy) fill (combined Saddle Creek & Saddle Crest). The surplus of 26,369.5 cm (34,490 cy) of earthwork (after adjustment) is nominal, and therefore the project cut and fill is considered balanced. Maximum 7.3 m (24 ft) (Saddle Creek) and 9.1 m (30 ft) (Saddle Crest) manufactured slope heights for building sites and driveways serving one building site. Maximum 12.2 m (40 ft) and 22.9 m (75 ft) manufactured slopes for Saddle Crest and Saddle Creek, respectively, for roads or driveways accessing five or more dwelling units.	If locally unstable slopes are encountered they shall be stabilized by partial slope reconstructions (i.e., stability fills). Stabilization fill may also be required to accommodate landscaping where cut slopes expose bedrock.
Seismic Hazards Site situated in seismically active area (peak ground acceleration of maximum credible event of 0.27 g and a maximum probable event of 0.202g). Site underlain with potentially liquefiable materials. Potential for differential compaction.	Combination fill slopes (consisting of two steeped wall portions and 2:1 slope portions) shall be constructed in accordance with the recommendations presented in the project's Geotechnical Report.
Soil-Related Impacts Localized materials (e.g., Serrano Clay) with high to very high expansion potential. Surficial stability analyses indicate that the planned cut and fill slopes will generally have an adequate factor of safety against surficial failures.	A base key 4.6 m (15 ft) wide by 0.6 m (2 ft) in depth shall be excavated prior to construction of fill slopes to be placed directly on natural ground. Benching into existing firm materials shall be performed as the fill is placed. Where depths of removals are deeper than that of the recommended key, no key will be required.
Slope Stability Proposed cut and fill and combined fill/natural and cut/natural slopes will generally be stable against deep-seated slope failures.	Subdrains may be needed for some of the fill slopes.
Landslides and Movement Two landslides, one in Saddle Crest and one in Saddle Creek, will require total removal to achieve stability. Where steep natural slopes (gradient steeper than a 2:1 inclination) are above proposed development areas, there is a potential for debris flow impacts.	During construction, conventional compaction procedures will be necessary in order that compaction can be achieved out to the slope face. To reduce the potential for surficial failure, cohesionless materials should not be used for the near-slope face zone. If cohesionless materials are used, then it is recommended that fill slopes be covered with a protective covering.
	All cut and fill slopes more than 9.1 m (30 ft) in height shall be provided with drainage and terraces.
	Structural setbacks varying from 0 to 12.2 m (40 ft) from the daylight edge may be required for lots created by cutting above natural slopes.
	A structural setback from the toe of the slope may be required in some cases where development is proposed at the base of relatively steep natural slopes.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
	Additional mitigation measures may be necessary to minimize the damaging effects of debris flows.
	To reduce the potential for surficial failure, cohesionless materials should not be used for the near-slope face zone. If cohesionless materials are used, then it is recommended that fill slopes be covered with a protective covering.
	The relatively level area of proposed Pads 27 through 30 at the rear (southern portion) of the lots may not be utilized for permanent structures such as buildings or swimming pools.
	Temporary cut slope failures shall be reduced by a combination of the following: 1) keeping the time between cutting and filling operations to a minimum; 2) limiting the maximum length of a cut slope exposed at any one time; and 3) cutting at no steeper than a 1.5:1 inclination. For into-slope bedding conditions, based on ingrading observations, steeper backcuts may be allowed but should not be steeper than 1:1.
	Removals: Complete removals should be performed to a 1:1 projection of buildable/structural areas. Where complete removals cannot be performed to a 1:1 projection, then structures may be built on competent materials by use of a deep foundation system (i.e., piles).
	Lot Capping/Overexcavation: It is recommended that all cut and cut/fill transition pads exposing either unsuitable or dissimilar earth materials be overexcavated and capped with a minimum of 5 feet of compacted fill.
	Subdrainage: All canyon bottoms, reentrants, and stabilization/buttress fills shall be provided with subdrainage systems. Additional subdrains may be needed in areas of heavy seepage or deep fills. Subdrain outlets should be protected from blockage or damage.
	General Earthwork and Grading Specifications: Prior to commencement of grading operations, all vegetation and organic topsoil shall be cleared and disposed of off-site. Once removals are completed, areas that will receive fill must be scarified, moisture-conditioned, and recompacted to a minimum of 90 percent relative compaction.
	Surface Drainage: Surface runoffs shall be directed away from the tops of slopes and into storm drains. The potential for surficial failures or excessive erosion. Ponding of water on pads shall be avoided and roof gutters and area drains may be advisable.

TABLE 5.3-12
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO EARTH RESOURCES

Summary of Impacts	Summary of Mitigation
	Expansion Potential: Removal and recompaction of highly expansive materials with relatively low expansive material to a depth of 1.5 m (5 ft) below pad grade is recommended. Additional testing should be performed at the completion of grading to further evaluate the corrosivity of the site's earth materials to concrete and metals.
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVELOPMENT - SAN JUAN CAPISTRANO	
No impacts.	Standard conditions regarding grading and geotechnical study.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Geotechnical, Geology and Soils Technical Report (GeoPentech, 2003).

TABLE 5.3-13
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PALEONTOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
No information provided.	--
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE).	
Potential loss of significant resources due to grading.	Certified paleontologist retained to observe operations and salvage exposed fossils.
	Materials exposed at the surface at locality RR 621 to be collected by certified paleontologist.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Low to moderate paleontological sensitivity.	In the event resources are found, a paleontologist is to be retained to investigate, determine significance and appropriate actions.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Known and potential paleontological resources could be disrupted or removed as a result of landfilling improvements and uses.	A paleontologist will prepare a Testing, Monitoring and Salvage Program for Paleontological Resources.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
Significant impact to paleontological resources is expected.	Impacts are anticipated to be substantially mitigated, to a less than significant level.
WHISPERING HILLS PLANNED COMMUNITY	
Construction could potentially impact unknown paleontological resources.	A paleontologist will be onsite during all grading excavation operations and other significant ground disturbing activities.
	Paleontologist will be present at the pre-grading conference, establish procedures for resource surveillance and establish procedures for temporarily halting or redirecting work to permit sampling, identification an evaluation of fossil finds. If major resources are discovered which would halt grading for a while, the paleontologist shall report to the City and the project developer.
	If significant concentrations of fossils are encountered which cannot be collected during normal monitoring time, salvage operations shall be initiated and completed as quickly as feasible.
	A final Paleontological Report shall be prepared for submission, review and approval by the Planning Director.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
No information provided.	--
MARBLEHEAD COASTAL	
Potential destruction of paleontological resources by grading and/or excavation of site.	Artifact and/or fossil preservation plans to be approved prior to issuance of rough grading permits.
PACIFIC POINT/SAN JUAN MEADOWS	
Summary of Impacts	**Summary of Mitigation**
Probabilities of resources to exist are moderate to high.	Paleontological monitors for grading activities and reports on findings.

TABLE 5.3-13
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PALEONTOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
High potential to contain significant non-renewable resources.	Paleontologist retained to conduct pregrading salvage and prepare catalogue of exposed resources and fossils.
ARROYO TRABUCO GOLF COURSE	
Summary of Impacts	**Summary of Mitigation**
Grading and excavation could impact paleontological resources.	Paleontologist to be retained to observe grading activities, salvage and catalogue fossils as necessary and provide follow-up report.
DANA POINT HEADLANDS	
Grading may expose unknown subsurface sensitive archaeological resources. In addition, the San Onofre Breccia may be exposed during grading, resulting in potential impacts to the fossiliferous fine grained facies.	A qualified paleontologist shall be present at pregrade conferences, available to conduct random checks of graded areas and provide field assessment and recommendation for disposition should unique cultural materials be unearthed.
	Submit written evidence to City that a certified paleontologist has been retained to observed grading and to salvage and catalog resources, if necessary.
	If unique paleontological resources are unearthed, a paleontologist will submit a follow-up report including the period of inspection, cataloged and analysis if artifacts found and a repository listing for item.
SADDLEBACK MEADOWS	
Grading and excavation could impact paleontological resources.	Paleontologist to be retained to observe grading activities, salvage and catalogue fossils as necessary and provide follow-up report.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Earth moving activities have the potential to impact buried paleontological resources in the moderately to highly sensitive areas in the coastal plains and washes, northeast, northwest, and southern parts of PA 51.	Prior to issuance of grading permits, retain a qualified paleontologist, establish procedures for cultural and scientific resource surveillance and protect any resources discovered during the grading process.
Potential beds of Pleistocene terrestrial vertebrates may underlie PA 30.	
RANCHO MISSION VIEJO	
Potentially significant impact. Will be analyzed in the EIR #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
SADDLE CREEK The following identified archaeological resources will be impacted: • CA-ORA-1519. Prehistoric lithic quarry • CA-ORA-1518H. Single-family residence, a privy, two sheds, and remains of a windmill water-pump within the 4S-Ranch (south) property. • CA-ORA-1517. A scatter of ground stone implements and chipped stone cores.	If avoidance of CA-ORA-1519, CA-ORA-1250, CA-ORA-1522, and CA-ORA-1517 is not possible, a Phase 2 evaluation of these sites shall be conducted. A collection shall be made of the diagnostic historic artifacts at CA-ORA-1518H. All recovered artifacts and confects shall be cataloged and analyzed, and special studies shall be undertaken if the recovered cultural remains warrant such studies.

TABLE 5.3-13
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PALEONTOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
• Primary No. 30-176627. Historical resources at the Watson Ranch, including a single-family residence, a barn, a storage shed, water tanks, and a free-standing barbecue. • Primary No. 30-176628. Historical resources, including a single-family residence, office structure, stone reservoir, barbecue, bunkhouse, barn and poultry and animal sheds and pens. CA-ORA-1517 and -1519 are prehistoric litchi sites. The extent of these resources or potential impact cannot be determined without subsurface excavation. Since the project site is in a highly sensitive area for prehistoric cultural resources, additional unidentified archaeological remains could be present and potentially impacted by the modified Proposed Project.	The milling stones and other art factual material on or in the wall at CA-ORA-1518H shall be collected and used for display or educational purposes.
<u>SADDLE CREST</u> The project will impact the following identified archaeological resources: • CA-ORA-1250. Scatter of ground stone and chipped litchi material next to an historic open mining trench. • CA-ORA-1522. A manor and dispersed scatter of litchi reduction material. • CA-ORA-1523H. An historic period mine (Serrano Clay Mine). • CA-ORA-1521H. An historic period mine (Shoppe Clay Mine). CA-ORA-1250 and -1522 are prehistoric litchi sites. The extent of these resources or potential impact cannot be determined without subsurface excavation. Since the project site is in a highly sensitive area for prehistoric cultural resources, additional unidentified archaeological remains could be present and potentially impacted by the modified Proposed Project. Both Serrano and Shoppe Clay Mines within the Saddle Crest project area would be disturbed by the proposed project.	
Scientific Resources: Each of the rock units underlying the project area has a high potential to produce significant fossils, both vertebrate and invertebrate. Excavations at the project site are likely to impact significant paleontology resources.	A qualified paleontologist shall be retained to monitor construction excavations that impact previously-undisturbed sediments of the Ladd, Williams, Silverado, Santiago, and Seeps Formations. If the paleontologist encounters any significant fossils, they shall be salvaged.

TABLE 5.3-13
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PALEONTOLOGICAL RESOURCES

Summary of Impacts	Summary of Mitigation
	The paleontologist will be allowed to divert or direct grading activity in the area of an exposed fossil to prevent the fossil from being destroyed.
	Because of the small nature of some fossils present in these rock units, it may be necessary for matrix samples to be collected for processing through fine mesh screens. The paleontologist will inspect samples of sediments regularly with a hand lens to determine if micro vertebrates are present, and if found, to collect appropriate matrix samples.
	Fossils shall be prepared to the point of identification, stabilized, mapped on a USGS topographic map, and catalogued before they are donated to their final repository.
Cumulative: Significant fossils recovered in the project vicinity and surrounding area have contributed to the understanding of the region's geologic and evolutionary history. Development of the proposed project in conjunction with future development projects in the area may result in the loss of unique and irreplaceable fossils.	
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
No impact.	None required.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Tale Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Sub region Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Paleontological Resources Technical Report (SWCA, 2003).

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Summary of Impacts	**Summary of Mitigation**
Increased demand for fire protection services.	Provision of fire station site. Submittal of Fire Service. Implementation Plan prior to recordation of first tentative tract map.
	Compliance with Ordinance No. 3570.
	Provision of fire flow/water systems and fuel modifications.
Increased demand for water supply and service.	Technical report to establish water system for reservoirs and pump stations.
	Water system infrastructure improvements to occur concurrently with development.
	Feature plan to provide implementation of low-flush toilets, low-flush showers and faucets, and insulation of hot water lines.
	Implementation of interior and exterior water conservation measures the State Department of Water Resources recommends.
Generation of additional wastewater.	Feature Plan to include technical report to establish wastewater service system.
	Wastewater system infrastructure improvements to occur concurrently with development.
Generation of 72,658 pounds of solid waste per day at buildout.	Program to sort recyclable materials from other solid wastes to be developed and approved.
Increased demand for law enforcement.	Contribution to the funding of additional police protection, manpower and equipment, if necessary.
Increase in demand for electrical and gas services.	Provision of unobstructive access to and along transmission facilities for patrol, repair and maintenance.
	Review and approval of proposed grading, improvements or other encroachments into right-of-way.
	Drainage into right-of-way to be examined prior to grading plan permit issuance.
Existing school capacities exceeded.	Reserve future elementary school site. Proactive steps to insure financing is available for additional school facilities.
Deficient 2.781 park acres.	Provision of 18.281 acres of local parks.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE)	
Summary of Impacts	**Summary of Mitigation**
Increased demands for water consumption.	Provision of design features that conserve water.
	Explore feasibility in providing seasonal water storage in the Talega vicinity.
	Irrigation systems to be designed to use recycled water.
Increased demands on gas and electric.	Compliance with building standards in Title 24 of the California Administrative Code.

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

	Master infrastructure plan developed to provide concurrent installation and undergrounding of all utility lines.
	Continued unobstructed access to and along the San Diego Gas & Electric (SDG&E) transmission facilities.
Increased demand on police and fire protection services.	Site plans to incorporate defensible space design considerations.
	Planning stages providing for possible need to accommodate a police substation.
	Fire protection agreement to be entered into with the City and County.
	Participation in a fund of assessed fees from new developments to provide for public safety services.
	Compliance with City's Fire Code requirements.
	Review of development plans by San Clemente and the County Fire Departments.
Increase demands on school facilities.	Contribution of fees required to mitigate impacts to existing school facilities.
	Completion of proceedings for the purpose of providing school facilities deemed necessary for the tract prior to recordation of final tract map.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
Summary of Impacts	**Summary of Mitigation**
Increase in demand for police and fire protection services.	Prior to commencement of any construction activities, coordination to ensure existing facilities are protected and any necessary expansion or relocation is planned and scheduled in consultation with the appropriate public agencies.
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
Summary of Impacts	**Summary of Mitigation**
Potential disruption to existing gas and electric facilities during construction.	Prior approval of construction and grading plans to ensure facilities are protected.
Potential impacts to oil pipelines during construction.	Coordination with Santa Fe Pacific Pipeline Partners Inc., during final design regarding precise location of existing pipelines on site.
No wastewater facilities available to site.	A soils report and plans for all sewage to be submitted for review and approval.
	Results of percolation tests and a log of soil borings, performed and reported for review and approval.
	Each proposed individual sewage disposal system designed in accordance with Environmental Health's "On-Site Disposal System Guidelines."
	Additional soil percolation system to be constructed and connected.

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
Summary of Impacts	**Summary of Mitigation**
No cumulative adverse impact on public services or public utilities.	No mitigation is required.
WHISPERING HILLS PLANNED COMMUNITY	
Summary of Impacts	**Summary of Mitigation**
Proposed Project/356 DU OCFA response time to the project site exceeds County standards.	Fair share contribution towards the development of fire protection infrastructure currently being planned in the San Juan/Ortega corridor.
New development will increase fire dangers and the need for fire protection measures.	Standard OCFA conditions will be imposed.
Generation of additional students who will require accommodation within the CUSD.	Mitigation fee in accordance with state law.
Increased demand for public parkland by bringing new residents to the City.	Payment of in-lieu park fee.
Grading, construction and development design may affect access to and along the existing SDG&E 150' electrical transmission corridor.	"Letter of Permission for Grading" from SDG&E.
High School/193 DU Alternative Same as Proposed Project/356 DU Impact.	Same as Proposed Project/356 DU Mitigation Measure.
Same as Proposed Project/356 DU Impact.	Same as Proposed Project/356 DU Mitigation Measure with one additional Mitigation Measure: CUSD shall provide information to the Fire Chief in accordance with the provisions of Service Code 1.39 Hazardous Materials Review.
Generation of 108 students that will require accommodation within the CUSD.	Mitigation fee in accordance with state law.
Same as Proposed Project/356 DU Impact.	Same as Proposed Project/356 DU Mitigation Measure.
Includes an institutional land use that might involve handling or storage of hazardous materials.	Rezone or tentative tract map approval shall impose conditions of approval.
Same as Proposed Project/356 DU Impact.	Same as Proposed Project/356 DU Mitigation Measure.
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
Summary of Impacts	**Summary of Mitigation**
Increased demand for water.	Design features that conserve water.
Increased demand for police and fire protection services.	Prior to issuance of occupancy permits, evidence that law enforcement and fire protection services can be provided to the proposed land uses.
Increased demand for school system.	Fees to mitigate impacts on existing school facilities.
Impacts associated with underground installation of utility lines.	Installation of utility lines to occur concurrently.
Increased demands for gas and electric.	Structures to comply with building standards in Title 24 of the California Administrative Code.
	Provisions for unobstructed access to and along the SDG&E transmission facilities.

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

MARBLEHEAD COASTAL	
Summary of Impacts	**Summary of Mitigation**
Increased demand for fire protection and emergency medical services.	Demonstration that project complies with Chapter 15.48 of the San Clemente Municipal Code, pertaining to emergency response standards.
PACIFIC POINT/SAN JUAN MEADOWS	
Summary of Impacts	**Summary of Mitigation**
Located in a high fire hazard area.	Fuel modification plan to be approved prior to issuance of grading permit.
Use of approximately one-half of the City's remaining capacity in the SERRA treatment plan.	Pay sewer capacity fees in amount of $3,165/dwelling unit.
	Design and construct all on site sewer facilities to City standards.
Demands on water supplies.	Participation in program established by CVWD to obtain and convey water for domestic use.
	Construction of water storage facility and all on site water facilities by applicant.
Generation of 115 K-12 students.	Applicant to work with CUSD to resolve any potential impacts on school facilities.
	Applicant to pay AB 2926 developer school fees.
	Potential elementary school site on the Mesa.
Deficit of 0.73 acre for park land dedication.	In-lieu fee of $206,000 per acre of park dedication. Final determination to be made by the City.
Increased demand for four million Kwh/year of electricity.	Project subject to Title 24 energy conservation requirements.
Two million cubic feet of natural gas consumed each month.	
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PLANNED COMMUNITY)	
Summary of Impacts	**Summary of Mitigation**
Road through fire hazard area.	Prior to issuance of grading permit for road, fuel modification plan and program to be approved.
Increased demand for fire protection services and emergency response times.	Prior to approval of final tract map, project proponent to enter into agreement with County to contribute on a pro-rata share for provision of a fire station.
Increased demand for police services.	OCSCD and CHP consultation to obtain information on traffic accident resolution and crime prevention features.
	OCSCD and CHP coordination to ensure adequate level of police protection.
	Prior to issuance of building permits or recordation of final tract/parcel map, development fees to be paid on pro-rata basis.
Need for coordination with Southern California Edison (SCE) for future site specific development.	Prior to recordation of final tract maps, coordination needed with SDG&E in the design and implementation of future electrical services/facilities required and to ensure no notable disruptions to the on site transmission lines would occur.

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

Further evaluation of the proposed land use plan to determine what specific natural gas facilities would be required to accommodate future urban land use.	Prior to recordation of final tract maps coordination needed with SCG in the design/implementation of future gas services and facilities to ensure that no notable service disruptions to existing services would occur and that improvements are adequate to serve proposed project.
Generation of water demand of approximately 3.61 million gallons per day (mgd).	Prior to recordation of final tract maps, coordination with SMWD and the County to establish precise locations for water supply services and facilities.
Requirement of realignment of a portion of the existing access road that serves the Chiquita WRP to avoid two 14-inch water reclamation lines.	Final road design plans to be developed taking into consideration the implementation of a proposed force main/trunk sewer proposed to extend through the area.
Generation of approximately 3.06 mgd of wastewater.	Coordination with SWMD in the establishment of precise locations for wastewater facilities.
Generation of approximately 4,389 students.	Coordination with CUSD to ensure adequate educational facilities are implemented.
Need for Mello Roos Community Facilities District (MRCFD) to facilitate additional funding to construct future educational facilities.	In coordination with CUSD, evaluate need for formation of a MRCFD and use of AB 2926 and AB 181 school fees.
Generation of approximately 57.63 tons of solid waste per day.	Measures to reduce amount of refuse to be developed in accordance with waste reduction requirements of California Integrated Waste Management Act of 1989.
Potential impact on library services.	Coordination with OCPL to ensure adequate library facilities are available.
	Prior to recordation of a final tract/parcel map, appropriate developer fees for needed library facilities to be paid.
ARROYO TRABUCO GOLF COURSE	
Summary of Impacts	**Summary of Mitigation**
No significant impacts on public services and utilities.	No mitigation is required.
DANA POINT HEADLANDS	
Summary of Impacts	**Summary of Mitigation**
Potential fire hazard could exist between development and the adjacent natural open space area.	Implementation of Project Design Features will reduce the potential for fire hazards. No mitigation required.
Minor increase in fire protection and emergency medical needs provided by OCFA.	Implementation of Project Design Features and Project Conditions will ensure adequate fire protections and emergency medical service. No mitigation required.
The resident and visitor populations will contribute incrementally to any evacuation from the City.	Implementation of Project Design Features and Project Conditions will reduce potential emergence access impacts. No mitigation required.
The project is expected to generate approximately 94 new students within the School District.	The developer shall pay school fees prior to issuance of building permits.
The project is expected to generate approximately 94 new students within the School District.	The developer shall pay school fees prior to issuance of building permits.

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

Contribute to cumulative local and regional demand for utilities; however, each provider of these services confirmed that these cumulative demands can be accommodated without significant impacts.	With implementation of Project Design Features and Project Conditions impacts will be less than significant. No mitigation required.
SADDLEBACK MEADOWS	
Summary of Impacts	**Summary of Mitigation**
Increased demand for water.	Design features that conserve water. Mitigation measure to define and provide sub-area water provision improvements.
Impacts on fire protection services are less than significant.	No mitigation is required.
Increased demand for police protection services would not be significant with the implementation of Standard conditions for law enforcement provision.	No mitigation is required.
Increased demand for school system.	Fee agreement with the Saddleback Valley Unified School District to mitigate impacts on existing school facilities.
Increased need for solid waste services.	County Standard conditions would reduce any impacts to less than significant. No mitigation is required.
Increased demands for gas and electric.	Structures to comply with building standards in Title 24 of the California Code of Regulations and County standards.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Summary of Impacts	**Summary of Mitigation**
Possible construction and operation of a new police substation.	Utilize existing City of Irvine standards.
Construction and operation of new fire protection facilities.	Utilize existing City of Irvine standards.
Construction and operation of new recreational facilities	Utilize existing City of Irvine standards.
Construction and operation of new school facilities.	Utilize existing City of Irvine standards.
Construction and operation of new potable water facilities.	Mitigation measures required for any significant impacts identified in Sections 5.1-5.13 of the EIR apply to future construction and operation of potable water facilities within the project area. Project specific mitigation measures will be also required. These mitigation measures will be identified and implemented at the appropriate time.
Construction and operation of new recycled water facilities.	Mitigation measures required for any significant impacts identified in Sections 5.1-5.13 of the EIR apply to future construction and operation of recycled water facilities within the project area. Project specific mitigation measures will be also required. These mitigation measures will be identified and implemented at the appropriate time.

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

Construction and operation of new wastewater facilities.	Mitigation measures required for any significant impacts identified in Sections 5.1-5.13 of the EIR apply to future construction and operation of wastewater facilities within the project area. Project specific mitigation measures will be also required. These mitigation measures will be identified and implemented at the appropriate time.
The project site may contain solid waste unsuitable for recycling or reuse. In addition, it will generate solid was from demolition, operation and landscape maintenance.	A technical evaluation shall be performed by a qualified environmental consultant. If the technical evaluation determines that the material is contaminated and prohibited from being recycled, further evaluation shall be conducted to determine other feasible methods to divert material from landfills.
Construction and operation of new energy and communication facilities.	Mitigation measures required for any significant impacts identified in Sections 5.1-5.13 of the EIR apply to future construction and operation of potable water facilities within the project area. Project specific mitigation measures will be also required. These mitigation measures will be identified and implemented at the appropriate time.
RANCHO MISSION VIEJO	
Summary of Impacts	**Summary of Mitigation**
Potentially significant impact. Will be analyzed in the Draft Environmental Impact Report (EIR) #589.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
Summary of Impacts	**Summary of Mitigation**
Public Services *Fire Protection and Emergency Services* - The introduction of 167 single-family homes and new residents will increase the level of fire protection and emergency services required for the project area. - Station 31 located in Mission Viejo provides the closest Advanced Life Support Paramedic Unit. The estimated response time from this station to the entrance of 4S Ranch is nine minutes (OCFA's criteria for paramedic units to arrive on scene is 10 minutes). However, once inside the project site, due to steep grades, the response time will increase to portions of the interior project and the OCFA standard will be exceeded.	Prior to the issuance of certificates of use or occupancy, the project applicant or developer shall provide evidence of disclosure to prospective buyers that may be outside of the response time standards of the OCFA. Unobstructed access to Santiago Truck Trail within the Saddle Creek project boundaries will be maintained throughout the construction and on-going occupation of the project. The condition to maintain this access during construction activities will be set forth in the construction vehicle routing plan and program to be submitted for approval by the County prior to issuance of grading permits. Provision of unobstructed access to this trail subsequent to project development will be included as a condition to be incorporated into the Homeowners Association's CC&Rs for the development.
Police Protection. Implementation of the proposed project will introduce structures and residents to the project site, and increase the level of traffic in the project vicinity. The additional activity will generate an incremental increase in service demand for police protection.	

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

School Facilities. Implementation of the proposed project will generate 92 students but will not require additional portable classrooms in order to meet the Class Size Reduction (CSR) set by the State and District, and will not result in a need for an expansion of existing or proposed facilities.	
Libraries. The proposed project will not result in a need for an expansion of existing or proposed facilities.	
Solid Waste. Implementation of the proposed project will generate approximately 105 tons of solid waste per year, with refuse transported to one of the three active landfills in Orange County.	
Cumulative: *Fire Protection and Emergency Services.* The Project will combine with anticipated countywide growth to cumulatively impact fire protection and emergency medical services. *Police Protection.* The Project will combine with other development to cumulatively increase police protection service requirements. New development will contribute to County tax revenues that will assist in financing additional facilities and personnel as required to meet additional police protection requirements in the County. *Schools.* Students generated by the Project will impact an already over-crowded school system. The proposed project in combination with District-wide growth will cumulatively impact the ability of SVUSD to adequately provide school services. *Libraries.* Residents generated by the Project will combine with areawide growth to cumulatively impact library services. *Solid Waste.* Implementation of the proposed project will incrementally increase solid waste disposal service requirements and cumulatively impact landfill capacity.	
Utilities *Electricity.* The proposed project will not result in an increase in demand for electrical services that cannot be met with existing resources.	No mitigation measures necessary
Natural Gas. The proposed project will not result in an increase in demand for natural gas services that cannot be met with existing resources.	

TABLE 5.3-14
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO PUBLIC SERVICES AND UTILITIES

Water. Trabuco Canyon Water District (TCWD) has indicated that the proposed project's domestic water demands can be met. Domestic water requirements will total approximately 558 gallons per day (gpd) per residence, and irrigation requirements will total approximately 640 gpd per residence. Water storage is anticipated to be adequate to serve Saddle Creek and Saddle Crest.	
Wastewater - The combined total wastewater generation for the modified Proposed Project is approximately 46,750 gpd (35,250 for Saddle Creek and 11,500 gpd for Saddle Crest). - System improvements will include extending an 8-inch diameter gravity sewer line from Cook's Corner up Live Oak Canyon Road to Saddle Creek entrances on either side of Live Oak Canyon Road.	
Cable. Cox Communications has indicated that it will be able to provide cable television service to the proposed development.	
COMMUNICATIONS Pacific Bell has indicated that it will be able to provide telephone service to the proposed development.	
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
Summary of Impacts	**Summary of Mitigation**
No impacts noted on any services or utility providers except for generation of solid waste during demolition activities.	Mitigation measure regarding recycling building materials.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units or OCP-2000 projections or 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton

Public Services and Utilities Technical Report (P&D Consultants, 2003).

TABLE 5.3-15
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO RECREATIONAL RESOURCES

Summary of Impacts	Summary of Mitigation
ROLLING HILLS PLANNED COMMUNITY (THE PART OF THE TALEGA DEVELOPMENT IN UNINCORPORATED ORANGE COUNTY)	
Proposed project does not provide sufficient parkland acreage consistent with County regulations.	Project must provide for 7.4 ha (18.3 ac) of local parks.
TALEGA VALLEY SPECIFIC PLAN (CHAMPION HILLS; THE PART OF THE TALEGA DEVELOPMENT IN THE CITY OF SAN CLEMENTE).	
7.37 ha (18.21 ac) of park are required by the County's local park code.	A Comprehensive Local Park Implementation Plan must be submitted to meet local park requirements.
CHIQUITA CANYON HIGH SCHOOL (NOW REFERRED TO AS TESORO HIGH SCHOOL)	
No information provided.	--
PRIMA DESHECHA SANITARY LANDFILL GENERAL DEVELOPMENT PLAN (GDP)	
The future alignment for La Pate Avenue will be intersected at grade by hiking and riding trails until La Pate Avenue is constructed.	The crossings will be consistent with County standards, with signing and pavement markings to keep vehicular and trail users safe.
	On street signing and pavement marking at this location to be removed and trail redesigned to direct trail users to the grade separate culvert.
The La Pate Avenue at grade trail crossing will be converted to a grade separated culvert.	The grade separated culvert must be constructed consistent with the County of Orange Regional Riding and Hiking Design Manual trail design standards.
Proposed recreational facilities could be visible on key ridgelines.	All permanent recreation facilities must be located below these key ridgelines such that they are not visible from surrounding cities.
OTHER PROJECTS LISTED IN THE LANDFILL GDP EIR	
These projects are not anticipated to have impacts on recreational resources.	No mitigation is required.
WHISPERING HILLS PLANNED COMMUNITY	
No information provided.	--
FORSTER RANCH SPECIFIC PLAN AMENDMENT	
No information provided.	--
MARBLEHEAD COASTAL	
Possibly significant increase in demand for parks and recreational facilities.	Payment of in-lieu park fees consistent with the City's Park Acquisition and Development Code.
PACIFIC POINT/SAN JUAN MEADOWS	
Summary of Impacts	**Summary of Mitigation**
2.11 ha (5.23 ac) of parkland dedication is required.	A 1.8 ha (4.5 ac) public park is proposed along Camino Las Rambles. The City will determine the amount of park in-lieu fees which may be required to meet the remaining park requirement.
ANTONIO PARKWAY ROADWAY ALIGNMENT AND LAND USE PLAN (LADERA PC)	
Land use plan may provide O'Neill Regional Park an opportunity to expand.	No mitigation is required.
Project provides 647.5 ha (1,600 ac) of open space where Arroyo Trabuco and San Juan Creek trails are proposed to be established.	During preparation of Area Plans, open space and a trail network must be addressed by the project proponent.
About 28.7 ha (71 ac) of local parkland are required according to MPLP standards.	Implementation plans for local parkland must be proposed before recordation of tentative tract maps.

TABLE 5.3-15
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO RECREATIONAL RESOURCES

Summary of Impacts	Summary of Mitigation
ARROYO TRABUCO GOLF COURSE	
No information provided.	This golf course is a recreation resource.
DANA POINT HEADLANDS	
Result in a beneficial impact to recreation resources in the area by designating approximately 25.1 ha (62 ac) for public recreation and conservation open space.	No mitigation required
Additional access ways to Strand Beach and other proposed public recreational areas may increase the demand for additional public parking adjacent to these access ways.	Parking and circulation will be adequate with implementation of Project Design Features and Project Conditions. No mitigation required.
The project may result in the temporary rerouting of access to Strand Beach during reconstruction of the north access to Strand Beach.	Prior to issuance of any grading permits, the developer shall prepare a plan for continuous public access to Strand Beach during periods of construction operations utilizing alternative pathways, if necessary.
SADDLEBACK MEADOWS	
0.81 ha (1.9 ac) local park requirement and temporary rerouting of Alison Creek Bikeway.	Construction and dedication of sections of two master planned trails, equestrian staging and rest area. Coordination of Bikeway rerouting plan.
ORANGE COUNTY GREAT PARK (formerly MCAS El Toro)	
Construction and operation of new recreational facilities	Utilize existing City of Irvine standards.
RANCHO MISSION VIEJO	
Summary of Impacts	**Summary of Mitigation**
Physical impacts of the proposed parks will be analyzed in Draft EIR #589. The proposed acreage of parkland exceeds requirements.	If necessary, will be provided in Draft EIR #589.
SADDLE CREEK/SADDLE CREST	
Cleveland National Forest (CNF): Wildlife corridors traverse the CNF in proximity to the eastern boundary of Saddle Creek and north/northwestern boundary of Saddle Crest. Potential project impacts to wildlife movement will be mitigated with a minimum 15.24 m (50 ft) setback to structures, fencing, and exterior lighting. No grading or fuel modification will encroach into the CNF.	No mitigation measures necessary.
Whiting Ranch Regional Wilderness Park: A portion of the project would be visible from a high point within Whiting Ranch, and is representative of potential, although likely worst-case, views. At its closest point, Saddle Crest is located approximately 1,066.8 m (3,500 ft) from this selected viewpoint. The closest, potentially visible developed area of Saddle Creek from this viewpoint would be approximately 2.3 km (1.4 mi). At this distance, although possibly visible, the visual impact of the development would be minimal.	

TABLE 5.3-15
SUMMARY OF IMPACTS FOR CUMULATIVE PROJECTS RELATED TO RECREATIONAL RESOURCES

Summary of Impacts	Summary of Mitigation
O'Neill Regional Park: Due to distance and intervening development and topography, the modified Proposed Project will not adversely impact this park.	
Cumulative: The proposed project will result in the cumulative loss of open space within the F/TSP area and Orange County. The development, however, will be consistent with the F/TSP and will retain 70 percent of the site in open space. Moreover, the project is within the phasing parameters identified in the F/TSP for development within the planning area.	
HONEYMAN RANCH PROPOSED RESIDENTIAL DEVLOPMENT - SAN JUAN CAPISTRANO	
No impact.	Standard compliance with Quimby Act.

Note: The following projects did not have any environmental documentation available for evaluation at the time of preparation of this report and were not included in the table.

1. Talega Development Feature Plan.
2. Rancho Mission Viejo (RMV) Development Entitlements, General Plan Amendment (GPA)/Zone Change (ZC).
3. Rancho Mission Viejo (RMV) proposed development plans, de facto zoning of 600 residential units and OCP-2000 projections of 21,000 residential units for RMV.
4. South Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
5. MCB Camp Pendleton.

Recreation Resources Technical Report (P&D Consultants, 2003).

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
Traffic	Continued peak hour deficiencies and congestion in the study area.	Continued peak hour deficiencies and congestion at increased number of locations.	Fair share contributions on a project by project basis.	Beneficial effects in numbers of deficiencies and limited indirect adverse impacts under the SOCTIIP build Alternatives. Greatest number of deficiencies occur under the No Action Alternatives.
Land Use	Continued development of vacant and agricultural land in urban and suburban uses.	Greater amount of urban and suburban land uses in the study area.	Protection of land in open space; landscaping and visual mitigation; planning/zoning setbacks and other standards.	Cumulative effect related to the conversion of vacant and undeveloped land to urban and suburban uses under the SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and the other cumulative projects in the study area. Not adverse because the land uses are compatible with the applicable local plans.
Agricultural Resources	Continued conversion of agricultural land for urban and suburban uses.	Loss of agricultural resources to urban and suburban uses.	None available.	Cumulative adverse effect of the SOCTIIP build Alternatives, the background MPAH and land use in the No Action Alternatives and the other cumulative projects in the study area related to the conversion of agricultural resources to urban and suburban uses.

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
Socioeconomics and Environmental Justice	Continued growth and development in South Orange County.	Greater amount of urban and suburban land uses in the study area.	None required except for compensation for the acquisition of property under the SOCTIIP build Alternatives.	No cumulative adverse effects of the SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and the other cumulative projects in the study area related to residential uses, community cohesion, economic impacts or Environmental Justice.
Pedestrian and Bicycle Facilities	Continued development of regional riding and hiking trails; occasional creation of barriers or adverse effects on the continuity of the trail system.	Development of trail systems throughout South Orange County, as part of urban and suburban uses and recreation uses. Occasional permanent barriers to the continuity of the trail system.	Provision of trails as a part of development; provision of trail crossings as appropriate as part of the SOCTIIP build Alternatives.	No cumulative adverse impacts of the SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and the other cumulative projects in the study area on pedestrian and bicycle facilities.
Noise	Continued development of urban and suburban land uses including both noise sensitive uses (residential, etc.) and additional noise sources throughout South Orange County including traffic and noise sources at land uses such as commercial, industrial and residential uses.	Implementation of noise sensitive lands uses and continued generation of noise in South Orange County as a result of various land uses.	Provision of soundwalls and other noise attenuation features for roads and noise sensitive land uses.	Future noise levels at residential uses along some road segments in South Orange County may exceed 65 CNEL, but the SOCTIIP build Alternatives do not perceptibly increase noise levels at these residences. Therefore, the SOCTIIP build Alternatives will not contribute to cumulative adverse noise impacts. The No Action Alternatives will not result in SOCTIIP related

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
				noise and, therefore, will not contribute to cumulative noise impacts.
Floodplains, Waterways and Hydrologic Systems, and Water Quality	Continued development of urban and suburban uses in watersheds throughout South Orange County including modification of some water courses to accommodate these land uses.	Potential for increases in discharges, runoff volumes and velocities, erosion, sedimentation, degradation of water quality and impacts to groundwater levels and quality. Potential changes to watercourses to accommodate development.	Construction management to reduce erosion and runoff from construction areas; design features and compliance with NPDES and other requirements; operations practices to reduce physical effects on water resources including controlling erosion, runoff, water quality, etc.	Potential cumulative adverse effects on water quality substantially mitigated through construction, design and operations features and practices. Therefore, the SOCTIIP build Alternatives, the No Action Alternatives and the other cumulative projects will not contribute to cumulative adverse impacts related to floodplains, hydrology, waterways and water quality.
Biological Resources	Continued adverse impacts on biological resources as a result of existing and planned development.	Potential direct impacts associated with habitat loss and fragmentation. Potential for indirect impacts associated with human intrusion, invasive species and noise impacts on wildlife.	Extensive mitigation measures to avoid and minimize impacts on plant communities, wildlife, sensitive species and critical habitat designations.	Cumulatively substantial adverse impacts as a result of the SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and other cumulative projects. Impacts to sensitive plant communities, sensitive plant and wildlife species, and wildlife corridors/habitat fragmentation.
Wild and Scenic Rivers	None in the study area.	--	--	None.
Coastal Barriers	None in the study area.	--	--	None.

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
Coastal Zone	Refer to trends for biological, cultural, paleontological and visual resources.	--	--	--
Historic and Archeological Preservation	Continued degradation and permanent loss of resources due to development.	Additional loss of resources due to urban and suburban development.	Monitoring during construction, documentation of resources, resources management programs.	Cumulative adverse impact on cultural resources as a result of the SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and other development in South Orange County.
Hazardous Materials and Hazardous Waste Sites	Continued use, handling, storage and transport of hazardous materials in South Orange County during construction and operation of existing land uses. Continued generation of hazardous wastes and risks of spills and hazardous materials accidents.	Continued use, handling, storage and transport of hazardous materials in South Orange County associated with construction and operation of approved and future land uses. Continued generation of hazardous wastes and risks of spills and hazardous materials accidents.	Compliance with applicable federal, state and local regulations; protection of existing utilities facilities (pipelines); compliance with landfilling regulations and practices; vector control.	No cumulative adverse impacts as a result of the SOCTIIP build and No Action Alternatives and the other cumulative projects in the study area related to hazardous materials and hazardous waste sites.
Visual Resources	Continued changes in views from undeveloped, vacant and open space views to views of urban and suburban land uses. Increasing lighting in study area.	Increased views of urban and suburban land uses and decreased views of undeveloped, vacant and open space lands. Increased areas with artificial lighting.	Landscaping, grading, design guidelines, lighting designs and controls, setbacks,	The cumulative projects, the SOCTIIP build Alternatives and the background MPAH and land use assumptions in the No Action Alternatives will all contribute to cumulative adverse visual impacts in south Orange County through changes in views of areas from undeveloped and vacant to

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
				views of urban and suburban land uses.
Energy	Continued use of energy resources for construction and operation of existing urban and suburban land uses in the study area.	Increased use of energy resources in the long term for the added urban and suburban land uses in the study area.	None identified.	The SOCTIIP built and No Action Alternatives will result in either no substantial difference in energy use or a beneficial reduction in energy use for transportation. The other cumulative projects would result in increased energy use in the long term which is assumed to contribute to a cumulative adverse impact related to energy use in the study area.
Earth Resources	No substantial existing conditions related to earth resources.	Grading, temporary effects on groundwater, potential impacts to springs, excess soil disposal, increased impermeable surfaces.	Grading and construction practices and standards.	The SOCTIIP build and No Action Alternatives and other cumulative projects in the study area will not contribute to cumulative adverse impacts related to earth resources.
Military Resources	Past encroachments (direct: I-5, NCTD facility) and indirect (development adjacent to the Camp Pendleton boundary) which adversely affect the training Mission.	Potential for indirect encroachment as part of the Ranch Plan on RMV associated with residential uses in Planning Area 8.	None identified at this time.	The SOCTIIP build Alternatives which cross SOSB encroach onto the Base. These Alternatives and the proposed RMV development plan for PA 8 would contribute to a cumulative adverse encroachment impact on Camp Pendleton. The other SOCTIIP build and No Action Alternatives and the

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
				other cumulative projects would not contribute to cumulative adverse impacts on Camp Pendleton.
Mineral Resources	Continued reduction of active mineral extraction operations and facilities in Orange County.	Potential for reduced extraction operations as a result of the SOCTIIP build Alternatives; potential reduction in access to sand and gravel resources on RMV under the proposed Ranch Plan.	None defined.	The SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and the other cumulative projects in the study area would result in a cumulative adverse impact on mineral resources and extraction opportunities in the study area.
Paleontological Resources	Continued adverse impacts on paleontological resources through removal as a result of urban and suburban development in South Orange County.	Continued loss of paleontological resources as a result of continued urban and suburban development in south Orange County.	Monitoring, documentation of recovered resources, protection in place.	The SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and the other cumulative projects in the study area would result in a cumulative adverse impact on paleontological resources in the study area.
Public Services and Utilities	Continued demand for public services and utilities in the study area, based on urban and suburban development in South Orange County.	Continued demand for public services and utilities to support additional urban and suburban land uses developed in the study area.	Provision of land and funds for facilities and services provided to support development; project features to reduce the demand for utilities.	The SOCTIIP build Alternatives and the other cumulative projects would not result in cumulative adverse impacts related to fire and emergency medical services; law enforcement services; public facilities; and utilities. The background

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
				MPAH and land use assumptions under the No Action Alternatives could contribute to cumulative adverse impacts related to public services. Some of the SOCTIIP build Alternatives, the background MPAH and land use assumptions in the No Action Alternatives and the other cumulative project in the study area would result in cumulative adverse impacts related to land fill capacity and lifespan at Prima Deshecha Sanitary Landfill; and schools.

TABLE 5.4-1
SUMMARY OF CUMULATIVE PROJECTS AND POTENTIAL CUMULATIVE IMPACTS

Environmental Parameter	Existing Conditions and Trends	Status at Completion of Cumulative Projects	Project Level Mitigation	Cumulative Environmental Effects of the Projects and the SOCTIIP
Recreation Resources	Continued demand for recreation facilities and resources by residents in suburban and urban areas in South Orange County.	Increased demand for recreation facilities and resources by residents of new urban and suburban development in South Orange County.	Provision of parks and/or funding for parks and recreation resources as conditions of development for residential uses.	All SOCTIIP build Alternatives will result in adverse impacts on recreation resources which will contribute to cumulative adverse impacts on recreation resources. The other cumulative projects and the background MPAH and land use assumptions under the No Action Alternatives in the study area will provide for recreation resources and facilities consistent with applicable local requirements and project conditions of approval.

SECTION 6.0
GROWTH INDUCING IMPACTS

SECTION 6.0
GROWTH INDUCING IMPACTS

6.1 INTRODUCTION

This Section assesses the potential growth inducing effects of the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) Build and No Action Alternatives

6.2 DEFINITION OF GROWTH INDUCEMENT

This analysis considered the following definitions of growth inducement:

California Environmental Quality Act (CEQA) Definition (Section 151262(d) of the CEQA Guidelines). The CEQA Guidelines set out the following requirements for discussion of growth inducing impacts:

> "Discuss ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth...Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in an area is necessarily beneficial, detrimental or of little significance to the environment."

40 Code of Federal Regulations (CFR) 1508.8 (Effects), part (b). This Section discusses growth inducing effects as:

> "Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."

FHWA Technical Advisory (TA) T6640.8A. This TA does not specifically define growth inducing effects. However, as part of the consideration of social impacts of a proposed project, the TA states:

> "Changes in the neighborhoods or community cohesion for the various social groups as a result of the proposed action. These changes may be beneficial or adverse, and may include splitting neighborhoods, isolating a portion of a neighborhood or an ethnic group, generating new development, changing property values, or separating residents from community facilities, etc."

Caltrans Environmental Handbook, Volume 4 "Community Impact Assessment" (CIA, 1997). This Handbook defines growth inducement as "...the relationship between the proposed

transportation project and growth within an area." Growth inducing effects can occur if the project either facilitates planned growth or induces unplanned growth.

Growth inducement can take several forms. A project can remove barriers, provide access or eliminate other constraints which encourage growth that has been approved and anticipated through the General Plan process or under adopted growth projections. This planned growth would be reflected in land use plans that have been developed and approved with the underlying assumption that an adequate supporting transportation network would be constructed. Infrastructure improvements that support this planned growth can be described as accommodating or facilitating growth. In addition, a project can remove barriers, provide new access or otherwise encourage growth which is not assumed as planned growth in the General Plans or adopted growth projections for the affected local jurisdictions. This could include areas which are currently designated for open space, agricultural or other similar non-urban land uses which, because of the improved access provided by the project, would experience pressure to develop urban uses or develop at a higher level of intensity than originally anticipated.

Within the context of these definitions and consistent with the Caltrans CIA guidelines, a conclusion must be made regarding the potential growth inducing effects of each SOCTIIP Alternative. Caltrans has determined that generally one of the following conclusions will apply (CIA, 1997, page 93):

Project will not affect growth: This conclusion can be made when no growth is expected or when the project would yield no advantages that would have effects on developers' decisions.

Cannot determine the effect on growth: This conclusion can be appropriate when any conclusion about the likely course of growth would be speculative.

Hasten or slow growth, intensify growth or shift growth from elsewhere in the region: One of these conclusions can be made when developers and the local planning agency/agencies are expected to modify their course or timing of development because of the project. The terms "support growth," "contribute to growth," "facilitate growth" or "respond to growth" are less precise ways of making this conclusion.

Induce growth: This conclusion can be made when a larger amount of development would be expected to occur (area wide) during or after the project's construction than otherwise would have been expected in the foreseeable future.

6.3 METHODOLOGY FOR GROWTH INDUCING IMPACTS ANALYSIS

The growth inducing impacts analysis was based on the established methodology and approach in the Caltrans CIA guidelines. The potential for the SOCTIIP Alternatives to result in growth inducing impacts was assessed based on the following key steps:

- Define growth inducing impacts.

- Describe the role of local agencies in land use planning and their role in directing future growth.
- Describe the factors that affect future growth in the study area.
- Generally identify areas of approved and planned development and areas not currently planned for development in the study area.
- Assess the potential for the SOCTIIP Alternatives to result in growth inducing impacts.
- Identify a specific conclusion regarding the potential growth inducing impacts of each SOCTIIP Alternative.

Four questions were used to assess the potential for the SOCTIIP Alternatives to result in growth inducing impacts:

> Question 1: Would the Alternative influence the overall rate of growth (that is, the speed at which growth occurs) in south Orange County or north San Diego County?
>
> Question 2: Would the Alternative influence the location of growth in south Orange County or north San Diego County?
>
> Question 3: Would the Alternative influence the amount of growth in south Orange County or north San Diego County?
>
> Question 4: Would the Alternative influence the type of growth in south Orange County or north San Diego County?

Several factors were considered when answering these questions:

- Existing or anticipated pressure for growth and development (economic and market conditions) without the SOCTIIP Alternatives.
- Potential growth inducing impacts associated with existing and/or planned development in south Orange County and north San Diego County.
- Overall local and subregional economic conditions related to unemployment, demand for housing, overall population growth, growth in the local economy and other factors.
- Local and County approvals for development absent commitments to the SOCTIIP Alternatives and other major transportation infrastructure improvements.
- Relationship of land use planning approvals/authorities and the SOCTIIP Alternatives.

The assessment of whether each Alternative results in growth inducing impacts considered the following:

- How each SOCTIIP Alternative, including the No Action Alternatives, may affect the rate, location and/or amount of growth.
- Whether the effects of the SOCTIIP Alternatives would be considered growth inducing.
- Whether those changes in rate, location and amount of growth would occur under the No Action Alternatives as well as under build Alternatives.

One of the following conclusions, based on the Caltrans CIA guidance, was drawn regarding the potential growth inducing impacts of each SOCTIIP Alternative:

- Project will not affect growth.
- Cannot determine the effect on growth.
- Project hastens or slows growth, intensifies growth or shifts growth from elsewhere in the region.
- Project induces growth.

6.4 FACTORS AFFECTING GROWTH

6.4.1 TRANSPORTATION IMPROVEMENTS

The Caltrans CIA guidelines make several points relevant to the SOCTIIP and its potential for growth inducing effects:

> "It is important to realize that any single highway investment is but a part of a much larger urban transportation system. Highway investments are marginal; they add some increment of accessibility to the area. In an area that already enjoys a high level of accessibility, we would not expect a new investment to have much of an impact. In an area with limited accessibility, the same investment would be expected to have a much larger impact. Most U.S. urban areas fall into the former category, however."

The Handbook goes on to say:

> "...recent studies show no consistent link between highway improvements and changes in land use. Instead...land-use impacts were largely dependent on four factors: overall local economic conditions; access to medium-income or high-income residential areas; availability of developable land; and favorable zoning policies."

This view is supported by a study prepared for the National Cooperative Highway Research Program (NCHRP, Land Use Impacts of Transportation: A Guidebook, Parsons Brinckerhoff Quade & Douglas, Inc., May 1998), which states:

> "While there is a basic understanding of transportation and land use relationships, the outcomes of specific plans or policies are difficult to predict. The main reason for this uncertainty is the complex, dynamic nature of the urban development process."

Major factors citied as contributing to the uncertainty are local conditions, the incremental, long term process of land use change, random events and flexibility of travel demand.

The NCHRP study further states:

> "The magnitude of changes in land use depend upon a) how much accessibility is improved, b) the relative attractiveness of the locations near the interchange, and c) the real estate market in the region....the largest magnitude impacts are expected from new facilities in fast growing areas."

The East Orange General Plan Amendment (GPA) Plan illustrates this conclusion. This Irvine Company project is in the east part of the City of Orange and was originally approved for 10,400 dwelling units (dus). The original GPA was prepared and approved prior to development of the Eastern Transportation Corridor (ETC) and Foothill Transportation Corridor-North (FTC-N) but did anticipate the implementation of these transportation facilities, which pass through the west and south parts of the site. However, in spite of completion of the ETC and FTC-N, the Irvine Company recently announced a 75 percent reduction in the number of dus in East Orange from 12,000 to 4,000 dus (Los Angeles Times, April 12, 2003). Therefore, in this case, the presence of two major transportation facilities that enhanced accessibility to the project site and land uses did not result in growth inducement beyond the level expected for the area.

Ranch Mission Viejo (RMV) presents another example of the complexity of this relationship. The Orange County Projections-2000 (OCP-2000) assumed the RMV property would be developed with 21,000 dus while the existing General Plan designation for this site would allow approximately 6,200 dus. The RMV development plan proposes 14,000 dus, which is substantially higher than what could occur under the current General Plan designation, but considerably lower than the number of dus assumed in OCP-2000. As discussed below, two potential circulation components have been submitted with the development plan: one incorporating a SOCTIIP corridor and one without any SOCTIIP corridor improvements. The overall distribution and intensity of land use is the same under both circulation system assumptions. Therefore, while access improvements are clearly necessary to allow development of the RMV property, it appears that factors other than the SOCTIIP, such as market considerations, issues related to the development of the Natural Communities Conservation Plan (NCCP) for this part of Orange County, etc., are driving the planned intensity and distribution of land use on RMV. Additional discussion of the RMV property in relation to the SOCTIIP Alternatives is provided in Sections 6.4 to 6.7.

The enhanced accessibility, in terms of improved travel times and mobility in the area, provided by transportation improvements may affect the value of land and associated development. This enhanced value would increase pressure for development of the affected property if other factors discussed below also favored development. A study by Marlon Boarnet and Saksith Chalermpong (New Highways, Urban Development and Induced Travel, Institute of

Transportation Studies (ITS), University of California, Irvine (UCI), August 2000) found "...empirical evidence that the construction of the first two portions of the Orange County toll road network created accessibility premia that are reflected in home sales prices." Using a variety of statistical techniques to examine how opening two new toll roads in Orange County affected home prices in nearby areas, the authors concluded the evidence was especially strong in regards to the FTC-N, but found ambiguous results for the San Joaquin Hills Transportation Corridor (SJHTC) due to "...confounding factors that are correlated with distance from the SJHTC toll road."

Other work by Boarnet found that the land use effects of modern highway projects likely operate over a "...very fine geographic scale, rather close to the project..." (Do Highways Matter? Evidence and Policy Implications of Highways' Influence on Metropolitan Development, Brookings Institution Center on Urban and Metropolitan Policy, Boarnet and Haughwout, August 2000). His work on the Orange County toll roads cited above found a positive effect on housing prices within an area extending outward for up to 1.6 kilometer (km, one mile (mi)) from the corridor centerlines.

A more recent study (New Highways, Induced Travel, and Urban Growth Patterns: A "Before and After" Test, ITS, UCI, Boarnet and Chalermpong, September 2002) which built on his previous work, found that, in addition to the effect on home values, the toll roads positively influenced employment growth in the vicinity of the facilities. Commercial office and retail, public buildings and industrial location decisions could be influenced by highway expansions.

Finally, it is important to note that any residential or non-residential growth that occurs in the vicinity of new or expanded highway systems likely comes at the expense of growth elsewhere in the region. In his August 2000 Brookings Institution study, Boarnet states "...the evidence suggests that highways influence land prices, population and employment changes near the project, and that the land use effects are likely at the expense of losses elsewhere."

6.4.2 OTHER FACTORS

As discussed below, many other factors can affect the amount, location and rate of growth in the SOCTIIP study area, including:

(1) market demand for housing, employment and commercial services.

(2) land availability to support future planned and unplanned development.

(3) local land use policies and permitting authority.

(4) decisions by local developers and landowners.

(5) availability of other road improvements (e.g. new/expanded arterial or highway capacity).

(6) availability of other services/infrastructure (e.g. wastewater treatment, water, schools, etc.).

6.4.2.1 Market Demand

Based on the currently adopted population and employment growth forecasts for the SOCTIIP study area, the resulting demand for housing and non-residential development is expected to remain strong through 2025. As discussed in detail in Section 4.3 (Affected Environment, Impacts and Mitigation Measures Related to Socioeconomics and Environmental Justice), population in the study area is expected to increase by 145,000 people between 2000 and 2025 (1.1 percent per year). Employment is expected to increase by 97,700 jobs over the same period (1.6 percent per year). Community Analysis Areas (CAAs) 59, 60 and 70 are expected to account for the majority of forecast growth in the SOCTIIP study area. Population in these three CAAs is forecast to increase by almost 97,600 persons between 2000 and 2025, and account for 67 percent of total population growth in the SOCTIIP study area. These three CAAs are in unincorporated County areas, and include the Ladera and Talega Planned Communities (PCs) and the RMV property. The RMV property is largely undeveloped and in agricultural holding or open space General Plan designations. OCP-2000 forecasted that future development of the RMV property would include approximately 21,000 dus. However, RMV has submitted development plans that call for 14,000 dus and less associated population than is assumed in the OCP-2000 forecasts. While these forecasts are based on macro level demand projections and assume adequate infrastructure (water, sewer, transportation, schools, etc.) will be available to support this development, the forecasts do not assume any specific infrastructure improvements, such as the SOCTIIP build Alternatives, are required to achieve the forecasts (personal communication with William Gayk, Director Center for Demographic Research (CDR), September 2001).

6.4.2.2 Approved and Planned Future Development and Areas Not Currently Planned For Development

The potential for growth inducing effects would be the greatest on undeveloped and unplanned land because these areas generally have no existing transportation infrastructure. With the exception of RMV, the majority of the SOCTIIP study area fits into three categories: (1) is already developed or under construction; (2) is in a General Plan for development or permanent open space or (3) has approved plans for future land use, such as a tentative tract map. The 9,254 hectare (ha, 22,850 acre (ac)) RMV property represents the only remaining large tract of undeveloped land in the study area although the General Plan designation for this site would allow for approximately 6,000 dus on this site. RMV has submitted plans to develop the property. This plan submitted to the County of Orange proposes 14,000 dus, approximately 465,000 square meters (sm, five million square feet (sq ft)) of commercial/industrial development, and recreational and open space uses as shown in Figure 6.4-1 and Table 6.4-1. Figures and tables cited in this Section are provided following the last page of text in this Section. The plan proposes 7,000 fewer dus on the property than are included in the adopted regional growth forecasts in OCP-2000. The plan includes two circulation components: one that accommodates a toll road corridor on the original Far East Corridor (FEC) Alternative alignment which is similar to the currently proposed FEC-Modified (FEC-M) Alternative Alignment and one without any SOCTIIP Alternative. The land use plan and overall density of the project is the same under both circulation system assumptions.

Additionally, a long term implication of the SOCTIIP could be the potential for existing land uses to intensify as redevelopment of the area occurs. Given the relatively new nature of much of the development in the study area (many of the communities in the study area have developed in the last 15 to 20 years), substantial redevelopment would likely occur beyond the 2025 time frame considered in the currently available regional projections and as considered in the analysis for this Environmental Impact Statement/Subsequent Environmental Impact Report (EIS/SEIR). The SOCTIIP has been designated in the County of Orange Master Plan of Arterial Highways (MPAH) since 1981. Two major planned communities in the study area, Ladera and Talega, are under construction and are substantially complete. SOCTIIP is not expected to enhance growth to any significant extent in these communities because the local land use agencies conditioned the approval of these developments to require the completion of the MPAH arterial system within the communities or comparable facilities. The land use approvals did not require the completion of the SOCTIIP, although the developers were required to contribute development impact fees to assist in the financing of the Eastern and Foothill Corridor Projects (including SOCTIIP). The Ladera and Talega projects are also the subject of development agreements between the developers and the local land use agencies. The development agreements provide the developers a vested right to complete the developments in accordance with the terms of the agreements.

6.4.2.3 Local Land Use Policies and Permitting Authority

The SOCTIIP study area covers the incorporated Cities of Aliso Viejo, Lake Forest, Laguna Hills, Laguna Woods, Mission Viejo, Laguna Niguel, Rancho Santa Margarita, San Juan Capistrano, Dana Point and San Clemente, unincorporated Orange County and the north part of Marine Corps Base (MCB) Camp Pendleton. Future land use planning and approval authority is vested in these agencies. The Transportation Corridor Agency (TCA), Federal Highway Administration (FHWA) and the California Department of Transportation (Caltrans) have no local or county land use planning or approval authority in the SOCTIIP study area.

Growth in the study area is directed by the General Plans for the County of Orange, incorporated cities in the study area and the Master Plan for MCB Camp Pendleton. The General Plan is the principal legal and regulatory tool in California for addressing land development and its impacts. As mandated by Government Code Sections 65000 to 66003, each jurisdiction is required to have a General Plan which must include land use, circulation and housing elements, as well as other elements. The goals, objectives, policies and programs of each General Plan element must be internally consistent and consistent with all other elements of the General Plan. Objectives for population, housing and employment growth must be coordinated with the provision of infrastructure and must ensure that infrastructure is constructed as needed to serve new development. Although MCB Camp Pendleton is exempt from state regulations concerning General Plans, it has its own Master Plan, which serves a similar function.

It is important to note that the local land use planning and approval process may not always fully consider subregional and regional effects of individual projects, particularly related to major public infrastructure such as roads, airports, prisons, landfills and other similar projects. Local land use planning agencies tend to plan separately for major transportation improvements at a regional/subregional level (i.e., General Plan level) without consideration of specific local land

use projects. This can result in situations where there is not always a direct nexus between a specific planned land use and any existing or planned transportation facility. Due to the long lead time involved in planning and implementing major regional and subregional transportation facilities, many are planned using long range economic and demographic forecasts that incorporate long term expectations on future development, while not reflecting any actual development plans. The SCAG Regional Transportation Plan (RTP) is an example of this type of regional/subregional transportation planning. Actual development of an area may or may not directly relate to the assumptions used to develop major transportation facility plans such as the RTP. Specific land use plans are generally aggregated into the planned development for a region or subregion. Therefore, specific local land use projects, such as a developer or public agency's specific entitlement request in order to implement the General Plan land use for a site, are not generally recognized individually in the planning for major transportation improvement projects.

Future growth in the County of Orange is also limited by the Growth Management Element (GME) of its General Plan. The GME has two primary implementation programs: the Measure M Countywide Growth Management Program (GMP) and the Orange County Congestion Management Program (CMP). These programs address cooperative inter-jurisdictional control of development projects, as follows:

- The GMP provides Inter-Jurisdictional Planning forums for the County to participate with other local jurisdictions in addressing cumulative traffic impacts and coordinating improvements to transportation and other infrastructure facilities. These forums also provide the opportunity to discuss proposed development projects with multi-jurisdictional impacts.

- The CMP goals are to reduce traffic congestion and provide a mechanism for coordinating land use development and transportation improvement decisions as established by Measure M. The CMP established a process for use by each jurisdiction to analyze impacts of proposed development projects on the CMP highway system. The CMP includes mechanisms for inter-jurisdictional coordination and mitigation where a proposed development is determined to generate an increase in traffic on CMP links/intersections beyond the jurisdiction's boundaries.

The GME states: "In addition, the concept of implementing new arterial highway links commensurate with new development, including links parallel to the freeway system, is required by the GM Element and will serve to mitigate impacts on the freeway system." The County's GME requires adequate transportation facilities to mitigate adverse transportation impacts of development projects.

6.4.2.4 Decisions by Local Landowners and Developers

With the exception of RMV, the majority of the SOCTIIP study area fits into three categories: (1) is already developed or under construction, (2) is in a General Plan for development or permanent open space or (3) has approved plans for future land use, such as a tentative map. The owners of the last large undeveloped and unplanned property in the SOCTIIP study area, RMV, have submitted an application to develop this property. As noted previously, this plan proposes 14,000 dus and approximately 465,000 sm (five million sq ft) of commercial/industrial building

space. The plan includes two circulation components: one that accommodates the original FEC Alternative and one without any SOCTIIP build Alternative. The land use plan and overall density of this proposed plan is the same under both circulation systems assumptions.

While the proposed RMV plan indicates the overall location and density of the land use plan with or without the original FEC Alternative, implementation of the FEC or other corridor Alternatives that pass through or near the property might influence the location and density of development within the areas on RMV which are identified for development. Recognizing that other factors, such as market conditions, economics, local land use approvals, etc., affect landowner decisions, the enhanced accessibility provided by SOCTIIP or other transportation improvements could potentially influence the amount of development on the RMV property if some other factor or factors do not otherwise limit development potential. On the other hand, RMV has already submitted applications for development of 7,000 dus less than forecast in OCP-2000. This action gives at least a general indication of the landowner's assessment of the appropriate development intensity level for the site, irrespective of SOCTIIP. Therefore, for the RMV property, the SOCTIIP build Alternatives have not led to an increase in the number of dus requested by the landowner. However, the selection of a SOCTIIP build Alternative that provides ready access to the RMV property will enhance the local and regional circulation system and would reduce the need for unplanned local arterial improvements to address arterial deficiencies that are forecast without the SOCTIIP corridor Alternatives. Any SOCTIIP build Alternative with an alignment through the RMV property is likely to increase the value of property within close proximity of the SOCTIIP alignment and thus tend to encourage the developer to plan its property in a way that increases the value of the land in proximity to the SOCTIIP alignment.

6.4.2.5 Availability of Other Road Improvements

The SOCTIIP is one component of a larger regional circulation system to serve the study area. Other plans affecting the regional circulation system include the Circulation Elements of individual jurisdictional General Plans, the MPAH and the RTP, all of which include the SOCTIIP in the form of the FEC alignment. The availability of other circulation system improvements included in these plans will affect future growth in the area. Planned components of the MPAH and RTP occur on RMV. These components or comparable facilities are accommodated in the circulation component of the proposed RMV development plan.

6.4.2.6 Availability of Other Critical Infrastructure

The location, timing and level of future growth in the study area will also depend on the availability of certain types of infrastructure/services, such as water, sanitary sewers, schools, etc. Plans for critical future infrastructure are addressed by the individual jurisdictions and agencies providing these services to existing and future development, and their availability may affect the location, level and timing of future development irrespective of SOCTIIP or other transportation improvements.

6.5 EFFECTS OF THE SOCTIIP ALTERNATIVES ON GROWTH

6.5.1 EFFECTS ON THE RATE, LOCATION OR TYPE OF GROWTH IN THE SOCTIIP STUDY AREA

The following four questions were used to assess the potential for the SOCTIIP Alternatives to result in growth inducing effects:

Question 1: Would the Alternative influence the overall rate of growth (that is, the speed at which growth occurs) in the SOCTIIP study area?

Question 2: Would the Alternative influence the location of growth in the SOCTIIP study area?

Question 3: Would the Alternative influence the type of growth in the SOCTIIP study area?

Question 4: Would the Alternative influence the amount of growth in the SOCTIIP study area beyond what would otherwise have been expected in the foreseeable future?

The answers to these questions result in conclusions regarding growth inducing effects, as follows:

- "No" answers to Questions 1 through 4 would result in a conclusion that the Alternative has no effect on growth.
- "Yes" answers to Questions 1, 2 or 3 would result in a conclusion that the Alternative could potentially facilitate or support growth in the SOCTIIP study area.
- A "Yes" answer to Question 4 would result in the conclusion that the Alternative could potentially induce study area-wide growth beyond what would otherwise have been expected in the foreseeable future.

6.5.1.1 Effect on the Rate, Location or Type of Growth in the SOCTIIP Study Area (Questions 1 to 3)

An adequate transportation system is one of a number of infrastructure and services, such as water, sewer, drainage, fire protection and schools, which are necessary to support development. If any of these services cannot be provided, development would be restricted or substantially slowed.

The construction of any SOCTIIP Alternative, including the No Action Alternatives, would not be expected to substantially affect the pattern of development for currently planned land uses in the study area. With the exception of the Arterial Improvements Only (AIO) and I-5 Widening (I-5) Alternatives, the corridor and No Action Alternatives committed and planned transportation facilities are generally shown on the local and regional planning documents and were, therefore, considered during the planning for approved planned development. The land uses, including the

amount, mix and distribution, were planned with the assumption that these improvements would contribute to the needed circulation infrastructure as these plans have been adopted after inclusion of the FTC on the MPAH in 1981. While some of the transportation facilities included in the AIO and I-5 Alternatives are not shown on local and regional planning documents, they are providing capacity enhancements through largely developed and currently planned areas. There could be some localized effect on the type, intensity and location of land uses in the immediate vicinity of new improvements in response to the final location and design of planned transportation facilities under any of the SOCTIIP build Alternatives.

It is possible that the rate of development could be affected by the development of the SOCTIIP Alternatives. All SOCTIIP Alternatives provide for enhanced local and regional access in the study area through implementation by others of the MPAH in addition to other facilities included in specific Alternatives. If the SOCTIIP build Alternatives were not constructed, the rate of development could be slowed for lack of adequate infrastructure. The EIR for the Ladera PC (Antonio Parkway Roadway Alignment and Land Use Plan (Ladera) Final EIR No. 555, SCH No. 94031075, County of Orange Environmental Management Agency, October 1995) evaluated the potential impacts if the SOCTIIP corridor were not implemented. The conclusion in that EIR was that the number of deficient intersections increased without the construction of the corridor. The Ladera PC approval was conditioned on the provision of transportation system capacity beyond the MPAH, excluding the FTC-South (FTC-S), prior to development of the final 1,000 dus in the project. The Ladera PC was not, however, conditioned on development of any specific transportation improvement. Therefore, without the SOCTIIP, other transportation improvements would be required to maintain the desired level of service to support that development. While the rate of construction of planned development could be slowed while other transportation improvements are identified, it should be noted that none of the planned development projects in the study area is conditioned on the implementation of a SOCTIIP build Alternative.

The construction of a SOCTIIP alternative could possibly have an effect on the rate and distribution of unplanned development, principally the RMV property. The plan submitted by the property owner only indicates the general location and overall intensity of development in development areas. The plan was submitted with two circulation systems, one showing the original FEC corridor, and one without any SOCTIIP build Alternatives. The overall distribution and intensity of land use is the same under both assumed circulation elements. However, the distribution and localized intensity of development in the major development areas on the RMV property could be affected by the specific location and alignments of circulation improvements, including SOCTIIP Alternatives, within these areas. All the SOCTIIP Alternatives, including the No Action Alternatives, provide for enhanced access in or near the RMV property through assumed implementation by others of the MPAH in addition to other facilities included in specific Alternatives. Construction of these facilities could affect the localized rate of development, as the enhanced access provided by these facilities could make adjacent areas more attractive for development. This effect would be most pronounced under corridor Alternatives that pass through RMV, which are all the corridor Alternatives. Because they could provide improved access to more remote, undeveloped land, the SOCTIIP corridor Alternatives that cross RMV would be more growth facilitating than Alternatives, such as the AIO and I-5 Alternatives, that pass principally through developed areas.

The SOCTIIP build Alternatives would provide regional access; however, this would have to be augmented by improved local circulation on RMV to provide internal access and connections to the regional network. The existing MPAH shows no planned arterial highways serving a majority of this area. The provision of other infrastructure, such as water, sewer and emergency services, would also be required. Finally, the amount, location and pace of development would depend primarily on economic and market conditions, decisions by the landowners and approvals by jurisdictions having local land use authority.

In summary, in response to Questions 1 to 3, because of improved transportation facilities and systems, all the SOCTIIP build Alternatives could potentially affect the timing, location or type of growth in the study area, leading to the conclusion that they could potentially facilitate or support growth in the study area. This could occur because of the enhanced accessibility to developed, planned and unplanned (RMV) areas in the study area provided by the new transportation facilities and systems included in each Alternative. The facilities will add road capacity and provide alternative regional and subregional access routes through the study area, as well as providing direct access to the property through which the improvements pass. The SOCTIIP corridor Alternatives and the other build Alternatives that cross areas that are generally unplanned would be more growth facilitating than Alternatives, the AIO and I-5 Alternatives, that remain principally in developed areas because they could provide improved access to more remote, undeveloped land.

The main differences in the potential growth facilitating effects of the SOCTIIP Alternatives relate to (1) the physical location of the effects in the study area and (2) the relative potential strength of the effect relative to other SOCTIIP Alternatives. These differences are discussed for each Alternative below. The discussion for each Alternative describes (1) the Alternative's route, (2) the strength of the potential growth facilitating effects relative to other SOCTIIP build Alternatives, (3) the areas where the potential growth facilitating effects of the Alternative would be focused, (4) the type and general location relative to project improvements of land uses potentially encouraged by the growth facilitating effects and (5) the relative effects of the Initial versus the Ultimate corridor configurations, where appropriate. The SOCTIIP Alternatives will have a much greater growth facilitating impact when compared to existing conditions. The development of the RMV property will require significant infrastructure improvements (such as water, sewer, roads) to accommodate either 14,000 units as proposed by the landowner or 21,000 units as contemplated by the OCP-2000 or the 6,200 units in the County General Plan. Any of the build SOCTIIP Alternatives will provide some of the circulation improvements that will be needed for the development. The development could also be served by a circulation system that does not include a SOCTIIP build Alternative. As described in the analysis of traffic impacts, the build Alternatives address existing and projected circulation problems in the area to varying degrees. Those build Alternatives that do a better job of addressing circulation demand created by new development on the RMV property will tend to have a greater growth-facilitating impacts.

6.5.1.2 Far East Corridor-West Alternative

This Alternative passes along the eastern edge of the Las Flores Planned Community, continues southward through the RMV property, crosses into MCB Camp Pendleton, and joins I-5 just south of the Orange County border. Given that this Alternative passes through RMV, which is undeveloped, currently being planned for development, and currently largely unserved by major transportation infrastructure, the potential growth facilitating effects of the FEC-W-Alternative would be relatively greater than for Alternatives that pass largely through existing developed areas and areas that are planned for and currently under development. For RMV, being planned for development means that the property owner is requesting development approvals and entitlements; in terms of adopted plans, RMV is designated for planned development on the Orange County General Plan.

FEC-W-Initial

The growth facilitating effects of the FEC-W-Initial would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the corridor in the immediate vicinity of project improvements, and to a lesser extent in a larger area extending outward from the centerline of the corridor improvements. While the geographic limits of this larger area of effect are variable, the accessibility premium created by corridor improvements could positively influence land values, and thus potentially increase pressures for development in the greater corridor area for up to 1.6 km (one mile) from the corridor centerline (Boarnet, M., August 2000).

To the degree allowed by local land use regulations and supported by market conditions, the Initial could facilitate commercial and industrial development along the corridor route and higher density commercial retail and office development in the immediate vicinity of interchanges, including Oso Parkway, Ortega Highway and Avenida Pico. The Initial would not facilitate growth in the vicinity of the Cristianitos Road or I-5 interchanges, as they are located on MCB Camp Pendleton, where civilian development is not allowed. The Initial could also facilitate residential development in the greater corridor area. The potential growth facilitating effects would be limited to areas currently planned or being planned for development, such as the development areas identified within the RMV Plan, as the corridor does not pass through already developed areas. Within the RMV property, the corridor passes through or near the following residential and/or commercial development Planning Areas: PA 2, PA3 and PA 5 (see Figure 6.4-1). These growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed RMV plan because:

- RMV's plans already show circulation elements with and without a SOCTIIP build Alternative and the development areas in the land use plan do not shift, intensify or change under the with and without scenario. Similar flexibility in the arrangement of land uses within the development areas would be expected in response to the other SOCTIIP build Alternatives.

- Extensive effort has occurred to identify the appropriate areas for development on the RMV property, as well as identifying sensitive natural resource areas. It is expected that the

planning and land use controls included as part of the NCCP process, such as the United States Fish and Wildlife Service Biological Opinion, would prohibit shifting the development into the biologically sensitive areas.

FEC-W-Ultimate

The potential growth facilitating effects of the FEC-W-Ultimate would be similar to those described for the FEC-W-Initial. However, the level of potential effects could be somewhat greater under the Ultimate due to the additional roadway capacity provided under the Ultimate.

6.5.1.3 Far East Corridor-Modified Alternative

This Alternative passes along the eastern edge of the Las Flores Planned Community, continues southward through the RMV property, crosses into MCB Camp Pendleton, and joins I-5 just south of the Orange County border. Given that this Alternative passes through RMV, which is undeveloped, currently being planned for development, and currently largely unserved by major transportation infrastructure, the potential growth facilitating effects of the FEC-M-Alternative would be relatively greater than for Alternatives that pass largely through existing developed areas and areas that are planned for and currently under development.

FEC-M-Initial

The growth facilitating effects of the FEC-M-Initial would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the corridor in the immediate vicinity of project improvements, and to a lesser extent in a larger area extending outward from the centerline of the corridor improvements. While the geographic limits of this larger area of effect are variable, the accessibility premium created by corridor improvements could positively influence land values, and thus potentially increase pressures for development in the greater corridor area for up to 1.6 km (one mile) from the corridor centerline (Boarnet, M., August 2000).

To the degree allowed by local land use regulations and supported by market conditions, the Initial could facilitate commercial and industrial development along the corridor route and higher density commercial retail and office development in the immediate vicinity of interchanges, including Oso Parkway, Ortega Highway and Avenida Pico. The Initial would not facilitate growth in the vicinity of the Cristianitos Road or I-5 interchanges, as they are located on MCB Camp Pendleton, where civilian development is not allowed. The Initial could also facilitate residential development in the greater corridor area. The potential growth facilitating effects would be limited to areas currently planned or being planned for development, such as the development areas identified within the RMV Plan, as this corridor does not pass through already developed areas. Within the RMV property, this corridor passes through or near the following residential and/or commercial development Planning Areas: PA 2, PA3, PA 6, PA 7, and PA 8 (see Figure 6.4-1). These growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed RMV plan because:

- RMV's plans already show circulation elements with and without a SOCTIIP build Alternative and the development areas in the land use plan do not shift, intensify or change under the with and without scenario. Similar flexibility in the arrangement of land uses within the development areas would be expected in response to the other SOCTIIP build Alternatives.

- Extensive effort has occurred to identify the appropriate areas for development on the RMV property, as well as identifying sensitive natural resource areas. It is expected that the planning and land use controls included as part of the NCCP process, such as the United States Fish and Wildlife Service Biological Opinion, would prohibit shifting the development into the biologically sensitive areas.

FEC-M-Ultimate

The potential growth facilitating effects of the FEC-M-Ultimate would be similar to those described for the FEC-M-Initial. However, the level of potential effects could be somewhat greater under the Ultimate due to the additional roadway capacity provided under the Ultimate.

6.5.1.4 Central Corridor-Complete Alternative

This Alternative passes along the east edge of the Las Flores PC and continues south through the RMV property to Ortega Highway. This corridor extends south from Ortega Highway, crossing through Prima Deshecha Landfill and south to Avenida La Pata. This Alternative extends southwest from the crossing of Avenida La Pata to a direct connector at I-5, then extend south on I-5 to the terminus just north of Cristianitos Road.

CC-Initial

Given that this corridor passes along the west edge of RMV, which is undeveloped, currently being planned for development and largely unserved by major transportation infrastructure, the potential growth facilitating effects of the CC-Initial would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas that are planned and currently under development.

The growth facilitating effects of the CC-Initial would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the corridor in the immediate vicinity of project improvements and, to a lesser extent, in a larger area extending out from the centerline of the corridor improvements. While the geographic limits of this larger impact area are variable, the accessibility premium created by corridor improvements could positively influence land values and, therefore, potentially increase pressures for development for up to 1.6 km (one mi) from the corridor centerline (Boarnet, M., August 2000).

To the degree allowed by local land use regulations and supported by market conditions, this corridor could facilitate commercial and industrial development along the corridor route and higher density commercial retail and office development in the immediate vicinity of interchanges, including Oso Parkway, Ortega Highway, Avenida Vista Hermosa, Avenida Pico

and I-5. This corridor could also facilitate residential development in the greater corridor area, primarily in the parts of RMV identified for urban development. Within the RMV property, this corridor passes through the following residential and/or commercial development PAs: PA 1 and PA 2, as shown on Figure 6.4-1. Growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed plan. Similar growth facilitating effects could occur to a lesser extent where the alignment passes through Talega PC and other developed parts of San Clemente, although they would probably occur in the longer term as much of this area is already developed.

CC-Ultimate

The potential growth facilitating effects of the CC-Ultimate would be similar to those described for the CC-Initial. However, the level of potential effects could be somewhat greater under the Ultimate due to the additional road capacity provided under the Ultimate, compared to the CC-Initial.

6.5.1.5 Central Corridor-Avenida La Pata Variation Alternative

This Alternative passes along the eastern edge of the Las Flores Planned Community and continues southward through the RMV property to Ortega Highway. The alignment then extends south from Ortega Highway, crossing through the Prima Deshecha Landfill property, and south to Avenida Vista Hermosa. This Alternative incorporates TSM technology improvements on Avenida Vista Hermosa from the corridor terminus at Avenida Vista Hermosa to Avenida La Pata, on Avenida La Pata from Avenida Vista Hermosa to Avenida Pico, and on Avenida Pico from Avenida La Pata to I-5.

CC-ALPV-Initial

Given that this corridor passes along the western edge of RMV, which is undeveloped, currently being planned for development, and currently largely unserved by major transportation infrastructure, the potential growth facilitating effects of the CC-ALPV-Initial would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas that are planned and currently under development.

The growth facilitating effects of the CC-ALPV-Initial would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the corridor in the immediate vicinity of project improvements, and to a lesser extent in a larger area extending outward from the centerline of the corridor improvements. While the geographic limits of this larger impact area are variable, the accessibility premium created by corridor improvements could positively influence land values, and thus potentially increase pressures for development for up to 1.6 km (one mile) from the corridor centerline (Boarnet, M., August 2000).

To the degree allowed by local land use regulations and supported by market conditions, the Initial could facilitate commercial and industrial development along the corridor route and higher density commercial retail and office development in the immediate vicinity of interchanges and major intersections, including Oso Parkway, Ortega Highway, Avenida Vista Hermosa, Avenida

Pico, and I-5. The Initial could also facilitate residential development in the greater corridor area, primarily in the portions of RMV that are identified for urban development. Within the RMV property, this corridor passes through the following residential and/or commercial development Planning Areas: PA 1 and PA2 (see Figure 6.4-1). Growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed plan. Similar growth facilitating effects could occur to a lesser extent where the alignment passes through Talega and other developed parts of San Clemente, although they would probably occur in the longer term as much of this area is already developed. There effects could include both intensification and/or redevelopment.

CC-ALPV-Ultimate

The potential growth facilitating effects of the CC-ALPV-Ultimate would be similar to those described for the CC-ALPV-Initial. However, the level of potential effects could be somewhat greater under the Ultimate due to the additional roadway capacity provided under the Ultimate.

6.5.1.6 Alignment 7 Corridor-Avenida La Pata Variation Alternative

This Alternative passes along the eastern edge of the Las Flores Planned Community and continues southward through the RMV property to Ortega Highway. This Alternative includes construction of a new connector road extending east from Antonio Parkway to the A7C alignment. The alignment extends south from Ortega Highway and across the Prima Deshecha Landfill, entering the City of San Clemente and crossing the Talega Valley PC to Avenida Vista Hermosa. The alignment incorporates TSM technology improvements on Avenida Vista Hermosa from the corridor terminus at Avenida Vista Hermosa to Avenida La Pata, on Avenida La Pata from Avenida Vista Hermosa to Avenida Pico and on Avenida Pico from Avenida La Pata to I-5.

A7C-ALPV-Initial

Given that this corridor passes through the western portion of RMV, which is undeveloped, currently being planned for development, and currently largely unserved by major transportation infrastructure, the potential growth facilitating effects of the A7C-ALPV-Initial would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas that are planned and currently under development.

The growth facilitating effects of the A7C-ALPV-Initial would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the corridor in the immediate vicinity of project improvements, and to a lesser extent in a larger area extending outward from the centerline of the corridor improvements. While the geographic limits of this larger impact area are variable, the accessibility premium created by corridor improvements could positively influence land values, and thus potentially increase pressures for development for up to 1.6 km (one mile) from the corridor centerline (Boarnet, M., August 2000).

To the degree allowed by local land use regulations and supported by market conditions, the Initial could facilitate commercial and industrial development along the corridor route and higher

density commercial retail and office development in the immediate vicinity of interchanges and major intersections, including Oso Parkway, Ortega Highway and Avenida Vista Hermosa. The Initial could also facilitate residential development in the greater corridor area, primarily in the portions of RMV that are identified for urban development. Within the RMV property, this corridor passes through the following residential and/or commercial development Planning Areas: PA 1, PA 2 and PA 5 (see Figure 6.4-1). Growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed plan. Growth facilitating effects could occur to a lesser extent where the alignment passes through Talega and other developed parts of San Clemente.

A7C-ALPV-Ultimate

The potential growth facilitating effects of the A7C-ALPV-Ultimate would be similar to those described for the A7C-ALPV-Initial. However, the level of potential effects could be somewhat greater under the Ultimate due to the additional roadway capacity provided under the Ultimate.

6.5.1.7 Alignment 7 Corridor-Far East Crossover-Modified Alternative

This Alternative passes along the eastern edge of the Las Flores Planned Community, continues southward through the RMV property, cross into MCB Camp Pendleton, and join I-5 just south of the Orange County border. Given that this corridor passes through RMV, which is undeveloped, currently being planned for development, and currently largely unserved by major transportation infrastructure, the potential growth facilitating effects of the A7C-FEC-M-Alternative would be relatively greater than for Alternatives that pass largely through existing developed areas and areas that are planned for and currently under development.

A7C-FEC-M-Initial

The growth facilitating effects of the A7C-FEC-M-Initial would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the corridor in the immediate vicinity of project improvements, and to a lesser extent in a larger area extending outward from the centerline of the corridor improvements. While the geographic limits of this larger area of effect are variable, the accessibility premium created by corridor improvements could positively influence land values, and thus potentially increase pressures for development in the greater corridor area for up to 1.6 km (one mile) from the corridor centerline (Boarnet, M., August 2000).

To the degree allowed by local land use regulations and supported by market conditions, the Initial could facilitate commercial and industrial development along the corridor route and higher density commercial retail and office development in the immediate vicinity of interchanges, including Oso Parkway, Ortega Highway, C Street, and Avenida Pico. This corridor would not facilitate growth in the vicinity of the Cristianitos Road or I-5 interchanges, as they are located on MCB Camp Pendleton, where civilian development is not allowed. The Initial could also facilitate residential development in the greater corridor area. The potential growth facilitating effects would be limited to areas currently planned or being planned for development, such as the development areas identified within the RMV Plan, as this corridor does not pass through

already developed areas. Within the RMV property, this corridor passes through or near the following residential and/or commercial development Planning Areas: PA 2, PA 5, and PA 8 (see Figure 6.4-1). These growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed RMV plan because:

- RMV's plans already show circulation elements with and without a SOCTIIP build Alternative and the development areas in the land use plan do not shift, intensify or change under the with and without scenario. Similar flexibility in the arrangement of land uses within the development areas would be expected in response to the other SOCTIIP build Alternatives.

- Extensive effort has occurred to identify the appropriate areas for development on the RMV property, as well as identifying sensitive natural resource areas. It is expected that the planning and land use controls included as part of the NCCP process, such as the United States Fish and Wildlife Service Biological Opinion, would prohibit shifting the development into the biologically sensitive areas.

A7C-FEC-M-Ultimate

The potential growth facilitating effects of the A7C-FEC-M-Ultimate would be similar to those described for the A7C-FEC-M-Initial. However, the level of potential effects could be somewhat greater under the Ultimate due to the additional roadway capacity provided under the Ultimate.

6.5.1.8 Arterial Improvements Only Alternative

The AIO Alternative assumes full build out of the MPAH and the RTP and also proposes the following additional improvements to the transportation system:

- Expansion of Antonio Parkway/Avenida La Pata to an eight lane Smart Street from Oso Parkway south to San Juan Creek Road, and to a six lane Smart Street from San Juan Creek Road south to Avenida Pico. Antonio Parkway/Avenida La Pata currently exists from south of Ortega Highway to the north. The MPAH shows Antonio Parkway/La Pata Avenue being extended south to south of Avenida Pico, with a six or four lane cross section. The AIO Alternative proposes adding one lane in each direction on Antonio Parkway/La Pata Avenue from Oso Parkway to San Juan Creek Road.

- Smart street improvements/TSM strategies on Ortega Highway, Camino Las Ramblas and Avenida Pico between Antonio Parkway/Avenida La Pata and I-5. Smart streets include a combination of advanced traffic management strategies such as traffic signal coordination, real time traffic monitoring and surveillance, and traveler information; and modest physical improvements such as additional turn lanes at intersections and select grade separations.

- Focused improvements are proposed for the intersections of Antonio Parkway/Avenida La Pata with Avenida Pico, Ortega Highway, Crown Valley Parkway and Oso Parkway. These improvements would include either left turn flyovers or full grade separated intersections.

Improvements under this Alternative are primarily in areas already planned and under development or existing urban areas, although improvements under this Alternative pass through one RMV PA (PA 1, as shown on Figure 6.4-1) being planned for residential and commercial uses. Therefore, the potential growth facilitating effects of this Alternative would be relatively lower than for Alternatives that pass primarily through unplanned/uncommitted areas, principally RMV.

The growth facilitating effects of the AIO Alternative would be focused in the immediate vicinity of intersections that can be developed for urban uses, along this road in the immediate vicinity of project improvements and, to a lesser extent, in a larger area extending outward from the centerline of the improvements. While the geographic limits of this larger impact area are variable, the accessibility premium created by these road improvements could positively influence land values and, therefore, potentially increase pressures for development for up to 1.6 km (one mi) from the road centerline (Boarnet, M., August 2000). However, with the exception of the improvements that pass through RMV PA 1, this Alternative's improvements occur in largely developed and currently planned and under development areas, and potential growth facilitating effects would generally be more localized than in RMV, which is undeveloped and unserved by major urban infrastructure.

To the degree allowed by local land use regulations and supported by market conditions, this Alternative could facilitate localized commercial and industrial development along the improvement routes and higher density commercial retail and office development in the immediate vicinity of major intersections. This Alternative could also facilitate residential development in the greater road area, primarily in RMV PA 1. Growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed and adopted plans in these areas.

6.5.1.9 I-5 Alternative

The I-5 Alternative assumes full build out of the MPAH and the RTP. The I-5 Alternative also assumes the following improvements to I-5: the addition of either one or two general purpose lanes in each direction between Cristianitos Road and north of Lake Forest Drive; and the provision of one HOV lane in each direction, except where HOV lanes are already programmed between Camino Las Ramblas and Avenida Pico. Additional mixed flow (auxiliary) lanes will be provided on several segments of I-5.

Improvements under this Alternative are within areas already planned and under development or existing urban areas. Therefore, the potential growth facilitating effects of this Alternative would be relatively lower than for Alternatives that pass primarily through unplanned/uncommitted areas, principally RMV.

The growth facilitating effects of this Alternative would be focused in the immediate vicinity of interchanges that can be developed for urban uses, along the I-5 corridor in the immediate vicinity of project improvements and, to a lesser extent, in a larger area extending out from the centerline of the improvements. While the geographic limits of this larger impact area are variable, the accessibility premium created by improvements could positively influence land

values and, therefore, potentially increase pressures for development for up to 1.6 km (one mi) from the freeway centerline (Boarnet, M., August 2000). However, this Alternative's improvements occur in largely developed and currently planned and under development areas, and potential growth facilitating effects would generally be more localized than in RMV, which is undeveloped and unserved by major urban infrastructure.

To the degree allowed by local land use regulations and supported by market conditions, the improvements to I-5, which generally passes through existing developed areas of San Clemente, Dana Point, San Juan Capistrano, Laguna Niguel, Mission Viejo, Laguna Hills and Lake Forest, could encourage localized redevelopment or intensification of commercial, industrial or residential uses that benefit from major highway exposure or immediate highway access.

6.5.1.10 No Action Alternatives

The No Action Alternatives assume the following:

- Build out of the MPAH, with all arterials constructed to their ultimate cross sections consistent with the MPAH.
- Build out of the RTP improvements in South Orange County.
- No extension of the existing FTC south of its existing terminus at Oso Parkway.
- An on-site circulation system on the RMV property, to support the 6,200 dus in the General Plan, the 14,000 dus proposed in the RMV development plan or the 21,000 dus forecast in OCP-2000.

Improvements under these Alternatives are primarily in areas already planned and under development or existing urban areas, although some MPAH improvements pass through one RMV area (PA 1, as shown on Figure 6.4-1) being planned for residential and commercial uses. Therefore, the potential growth facilitating effects of these Alternatives would be relatively lower than for Alternatives that pass primarily through unplanned/uncommitted areas, principally RMV.

The growth facilitating effects of these Alternatives would be focused in the immediate vicinity of interchanges that can be developed for urban uses, in the immediate vicinity of background project improvements (MPAH and RTP) and, to a lesser extent, in a larger area extending out from the centerlines of the improvements. While the geographic limits of this larger impact area are variable, the accessibility premium created by improvements could positively influence land values and, therefore, potentially increase pressures for development for up to 1.6 km (one mi) from the road centerlines. However, with the exception of the MPAH improvements that pass through RMV PA 1, these Alternatives' improvements occur in largely developed and currently planned and under development areas, and potential growth facilitating effects would generally be more localized than in RMV, which is undeveloped and unserved by major urban infrastructure. Given that there are no SOCTIIP-related improvements in these No Action Alternatives, beyond those assumed to be completed by others, such as the MPAH and RTP,

there are no potential growth facilitating effects from these Alternatives beyond those generated by the improvements assumed to be completed by others.

To the degree allowed by local land use regulations and supported by market conditions, these Alternatives could facilitate localized commercial and industrial development along the improvement routes and higher density commercial retail and office development in the immediate vicinity of interchanges and major intersections, and residential development in the greater road area, primarily in RMV PA 1. Growth facilitating effects would occur within the overall distribution and intensity of development allowed under the proposed plan.

6.5.2 EFFECTS ON THE AMOUNT OF GROWTH IN THE SOCTIIP STUDY AREA (QUESTION 4)

All the SOCTIIP Alternatives, including the No Action Alternatives, would facilitate and support growth in the study area through improved regional access and circulation. However, the pressure for urban development throughout the study area, but principally in the undeveloped parts of the study area, such as RMV, would occur even without the SOCTIIP Alternatives. The Ladera and Talega PCs already have entitlements for growth and are partially built out. South Orange County is perceived as a desirable place to live and work. The unemployment rate is lower than the national and state averages, the climate is temperate and many amenities are available. This conclusion is supported by adopted regional population and employment forecasts, which indicate continued strong demand for housing and non-residential development in Orange County through 2025, continuing development in entitled, planned areas (Ladera PC, Talega PC, etc.) and the longer range planning that is underway for RMV.

The SOCTIIP Alternatives would have limited influence on the amount of development in existing developed areas and areas already planned for development, such as the Ladera, Talega or Marblehead PCs, for reasons discussed in Sections 6.5.1. However, adopted regional growth forecasts indicate long term demand for up to 21,000 dus on RMV which is the last large tract of undeveloped and unplanned land in the SOCTIIP study area. The RMV plan proposes 14,000 dus and approximately 465,000 sm (five million sq ft) of commercial and industrial building space. The plan includes two circulation components: one that accommodates the FEC Alternative and one without any SOCTIIP Alternative. The land use plan and overall density of the project is the same under both assumed circulation systems.

While the RMV plan indicates the overall location and density of the land use plan with or without the FEC Alternative, implementation of the FEC or other Alternatives that pass through or near the RMV property might influence the location and density of development in the areas identified for development. Recognizing that other factors, such as market conditions, economics, local land use approvals, etc., affect landowner decisions, the enhanced accessibility provided by SOCTIIP or other transportation improvements could potentially influence the amount of development on RMV if some other factor or factors do not limit development potential. On the other hand, RMV has already submitted an application for development of 7,000 dus less than forecast in OCP-2000. This action gives at least a general indication of the landowner's assessment of the appropriate development intensity level for RMV, irrespective of

the SOCTIIP. Therefore, for the RMV property, the SOCTIIP has not led to an increase in the number of dus requested by the landowner.

The increment between the RMV plan and adopted regional growth forecast for the area, 7,000 dus, could be accommodated through minor density increases in the existing developed and planned for development areas. This could occur through a combination of infill development, redevelopment and increased density. Intensification of land use is a trend that would be expected to occur as the study area matures. For example, as north Orange County matured over the past three decades, the density of development increased. This is shown by the increase in multi-family housing as a share of total dus over the period. In 1970, multi-family housing represented 28 percent of the total dus in north Orange County. By 2000, the share was 37 percent. Accommodating the 7,000 dus forecast for RMV would require a density increase of less than three percent over forecast levels in the balance of the SOCTIIP study area. The location and amount of this potential development would be dependent on future landowner, developer and local jurisdiction decisions.

Published documentation on RMV plans have not identified the expected number of employees that might be accommodated in the commercial/industrial development planned for the property. Therefore, direct comparisons with employment levels projected for RMV in OCP-2000 (about 10,500 jobs) are not possible. However, based on typical employee per square foot factors, the five million square feet of commercial/industrial space included in the RMV plan could accommodate between 7,000 and 17,000 employees. Thus, the RMV plan potentially includes sufficient commercial/industrial space to accommodate OCP-2000 employment projections. Further, as stated above, the landowners' plan includes the same level of commercial/industrial development with or without SOCTIIP improvements, indicating that the landowner does not anticipate that SOCTIIP improvements would lead to increased commercial/industrial development.

Therefore, given currently available information, it is not anticipated that the SOCTIIP Alternatives' improvements would influence the amount of growth on the RMV property. They may, however, affect the location, timing or localized intensity of growth of RMV. However, it is unlikely that SOCTIIP Alternatives would influence the total amount of growth in the SOCTIIP study area beyond what would otherwise be expected under the adopted regional growth forecasts in the foreseeable future and would not be considered to be growth inducing.

The SOCTIIP build Alternatives would provide improved accessibility from residential population centers in northern San Diego County, such as Oceanside, Carlsbad and Encinitas, to major employment centers in central Orange County, such as the Irvine Spectrum area. As previously stated in Section 6.5.1, improved accessibility provided by transportation projects can potentially affect the amount, location and rate of growth in areas served by the improvement. However, improved accessibility provided by SOCTIIP build Alternatives is not expected to substantively affect growth in northern San Diego County due to:

(1) The small share of workers who commute from San Diego County to jobs in Orange County. Based on 2000 United States Census data, less than one percent of San Diego County workers commute to jobs in Orange County (the reverse is also true).

(2) The distance of this area from Orange County job centers combined with the relatively limited incremental improvement in long distance commute time provided by the SOCTIIP build Alternatives. The population centers in northern San Diego County are separated from Orange County's southern border by MCB Camp Pendleton, a distance of 33+ km (20 plus mi). Camp Pendleton is under federal ownership and military operations are anticipated to continue well into the foreseeable future. No civilian development is permitted in this area. Given the distance from northern San Diego County population centers to the Orange County border and data provided in Section 3.0 (Traffic), commute times from northern San Diego County population centers to central Orange County job centers would be almost 1.5 hours (or more, the further south one goes) under the No Action Alternatives. Based on 2000 United States Census data, it is estimated that less than four percent of workers in northern San Diego County commute this amount of time. The SOCTIIP build Alternatives could reduce this commute time by 0 minutes to a maximum of 14 minutes, with the greatest reduction under the I-5 Alternative. The corridor Alternatives could generally reduce commute times between these areas by less than 10 minutes. Even under the maximum reduction scenario (14 minutes), 2000 United States Census data show that about six percent of workers commute this amount of time, indicating a relatively limited incremental increase in the pool of workers that might choose to commute the length of time needed to get to Orange County job centers from northern San Diego County.

6.6 CONCLUSIONS REGARDING GROWTH INDUCING IMPACTS

In summary, each of the SOCTIIP build Alternatives and the No Action Alternatives, which do not include any SOCTIIP improvements, has the potential to facilitate or support growth in localized areas through the provision of enhanced accessibility to specific parts of the study area. However, while all the SOCTIIP Alternatives may affect the localized rate and location of growth because development would be expected to cluster in the vicinity of the transportation system facilities that enhance accessibility, the regional growth rate would be expected to remain stable. When compared against existing conditions, any of the build Alternatives will tend to hasten growth and contribute to an intensification of growth. The FEC, A7C and CC Alternatives corridor variations would have the greatest amount of growth-facilitating impacts; the AIO and I-5 Alternatives would be less growth facilitating. The Alternatives would not be expected to induce growth beyond the amount of growth that is otherwise projected to occur during the planning horizon for the project, based on:

- The pressure for urban development will occur with or without the implementation of the SOCTIIP Alternatives. The study area is perceived as a desirable place to live and work. The unemployment rate is lower than the national and state averages, the climate is temperate and many amenities are available. The adopted population and employment forecasts indicate continued strong demand for housing and non-residential development in south Orange County through 2025.

- Total levels of development and growth are controlled by the General Plans of the County and adjacent cities, and are ultimately driven by the market demand for housing, jobs, recreation and services. The TCA, FHWA and Caltrans have no local or county level land

use planning or approval authority in south Orange County. The County's GME requires adequate transportation facilities to mitigate adverse transportation impacts of development projects.

- Adopted regional growth forecasts indicate long term demand for up to 21,000 dus on the last large tract of undeveloped and unplanned land in the SOCTIIP study area, RMV. The property owner's plan proposes 14,000 dus and approximately 465,000 sm (five million sq ft) of commercial/industrial building space. While the RMV plan indicates the overall location and density of the land use plan with or without the FEC Alternative, implementation of the FEC or other Alternatives that pass through or near the property might influence the location and density of development in the areas on RMV identified for development. Recognizing that other factors, such as market conditions, economics, local land use approvals, etc., affect landowner decisions, the enhanced accessibility provided by the SOCTIIP Alternatives or other transportation improvements could potentially influence the amount of development on the property if some other factor or factors do not limit development potential. On the other hand, RMV has already submitted an application for development of 7,000 dus less than forecast in OCP-2000. This action gives at least a general indication of the landowner's assessment of the appropriate development intensity level for the site, irrespective of the SOCTIIP. Therefore, for the RMV property, the SOCTIIP has not led to an increase in the number of dus requested by the landowner.

- The increment between the RMV plan and the adopted regional growth forecast for the area, 7,000 dus, could be accommodated through minor density increases in the existing developed and planned for development areas. Accommodating the additional 7,000 dus forecast for RMV would require a density increase of less than three percent over forecast levels in the balance of the SOCTIIP study area. Therefore, it is unlikely that the SOCTIIP Alternatives would influence the amount of growth in the SOCTIIP study area beyond what would otherwise be expected in the foreseeable future.

6.7 IMPACTS OF GROWTH INDUCEMENT

The SOCTIIP Alternatives, including the No Action Alternatives, are anticipated to have short and long term growth facilitating impacts by expanding access to existing planned and developed areas and by providing access to currently unplanned and undeveloped areas. Environmental impacts of this growth on planned land uses have been considered by the respective cities and county in conjunction with the adoption of their General Plans and land use plans for these areas. Consequently, the SOCTIIP Alternatives are not anticipated to result in additional unanticipated environmental impacts to already committed and uncommitted planned land uses.

However, the SOCTIIP Alternatives have the potential to affect the location, timing and localized intensity of development on the undeveloped and unplanned areas that are not committed to permanent open space. RMV represents the only significant property in this category. Entitlement processing for urban development on RMV, in conjunction with habitat preservation and NCCP planning, are currently underway. The proposed plans identify the location of development and open space areas in the property and have proposed a maximum level of development that could occur in the development areas. These development and open

space areas are not adopted yet and could change during the environmental review process. The changes would most likely not substantially change the total amount of development on RMV.

The NOP for the RMV project indicates that the project will potentially significantly impact agricultural resources, hydrology/drainage, water quality, air quality, noise, biological resources, aesthetics, cultural resources, recreation, mineral resources, noise, public services, traffic, and utilities and services. Section 5.0 (Cumulative Impacts) more specifically addresses potential impacts of the SOCTIIP Alternatives for specific environmental parameters in conjunction with the RMV and other development in the study area, based on currently available data.

Potential traffic and traffic related air quality and noise impacts on the regional and subregional transportation network of development on RMV have been considered in the analyses conducted for the SOCTIIP Alternatives, as these analyses assumed either 14,000 or 21,000 dus would be constructed on the RMV property, consistent with the proposed RMV development plan and OCP-2000, respectively.

To the extent that the SOCTIIP Alternatives facilitate this development activity, they would contribute to these impacts. However, the effect will be limited to development areas and overall levels of development identified in the proposed RMV plan. Therefore, the SOCTIIP Alternatives will not increase the overall impacts of the RMV development that will be evaluated in the EIR for the RMV plan. It is not anticipated that the boundaries of the development areas on RMV would be expanded or shifted, thus potentially increasing the impact on sensitive habitat areas, in response to SOCTIIP Alternatives because:

- The RMV plan already shows circulation elements with and without one of the SOCTIIP build Alternatives (FEC) and the development areas in the land use plan do not shift or change under the with and without SOCTIIP scenarios. Similar flexibility in the arrangement of land uses in the development areas would be expected in response to the other SOCTIIP build Alternatives.

- Extensive effort has occurred to identify the appropriate areas for development on the RMV property, as well as identifying sensitive natural resource areas. It is expected that the planning and land use controls included as part of the NCCP process, such as the USFWS Biological Opinion, would prohibit shifting the development into the biologically sensitive areas or increasing the overall amount of development.

The SOCTIIP Alternatives having relatively greater potential to facilitate growth on RMV are those that pass largely through the property and include the FEC, A7C and CC Alternatives and the corridor variations to those Alternatives. SOCTIIP Alternatives and the No Action Alternatives, which do not include any SOCTIIP improvements, that pass largely through existing planned and developed areas and have limited or no segments passing through or near RMV, would have relatively lower potential to facilitate growth on RMV. These are the AIO, I-5 and the No Action Alternatives.

TABLE 6.4-1
PROPOSED RANCHO MISSION VIEJO LAND USE STATISTICAL TABLE

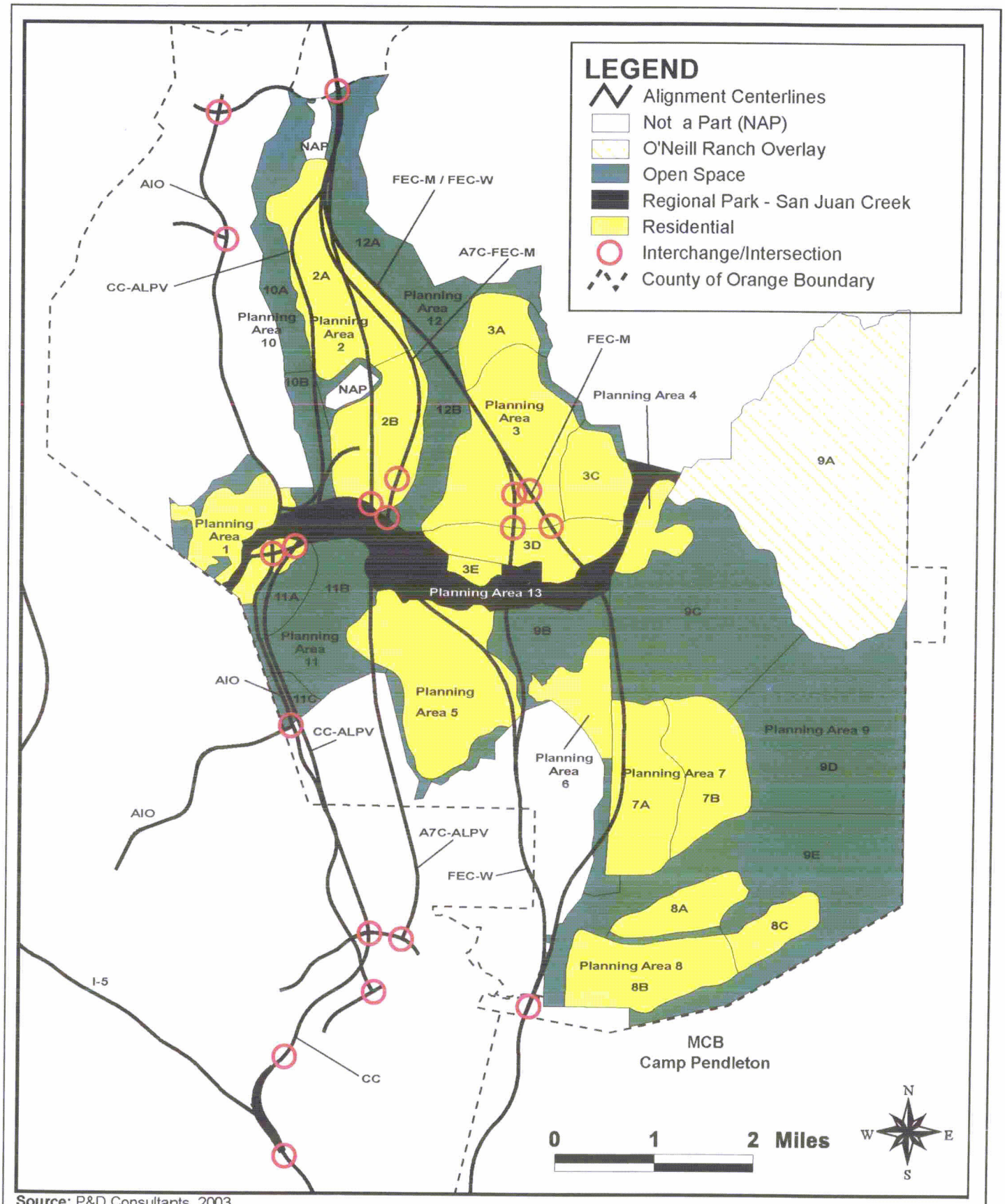
PLANNING AREAS

Planning Area	Residential		Open Space		Totals
	Max dus	Gross Acres	Gross Acres	Reg Park Gross Acres	Gross Acres
1	1,020	540	148	122	810
2	1,180	,1631	49		1,680
3	6,000	2,193	115		2,308
4	150	216			216
5	2,440	1,191	159		1,350
6	110	275	33		308
7	1,480	1,350	132		1,482
8	1,400	1,214	50		1,264
9			9,218		9,218
10			778		778
11			1,050		1,050
12			1,429		1,429
13				957	957
Subtotal	13,780	8,610	13,161	1,079	22,850
O'Neill Overlay	220				
TOTALS	14,000	8,610	13,161	1,079	22,850

Source: Rancho Mission Viejo (2001).

OVERLAY ZONES

O'Neill Ranch						Urban Activity		Neighborhood Center		Business Park		Golf Resort
Estate	Gross Acres	Golf Casitas	Gross Acres	Golf Course Gross Acres	Total Gross Acres	Gross Acres	Maximum Square Feet	Gross Acres	Maximum Square Feet	Gross Acres	Maximum Square Feet	Gross Acres
						108	630,000			38	575,000	
										40	610,000	
						22	140,000	22	220,000	100	1,525,000	
								5	50,000			
								5	50,000			
								2	20,000			
								5	50,000	80	1,220,000	20
100	200	120	20	200	420							
100	200	120	20	200	420	130	770,000	39	390,000	258	3,930,000	20



Source: P&D Consultants, 2003.

Rancho Mission Viejo Proposed Development

SECTION 7.0
CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION

SECTION 7.0
CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION

7.1 CEQA LEVEL OF SIGNIFICANCE

The California Environmental Quality Act (CEQA) requires that each significant impact be identified in the Environmental Impact Report (EIR) (Public Resources Code Section 21082.2). In this Section, references to significant adverse impacts of the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) Alternatives are made to fulfill the requirements of CEQA. The basis for the significance conclusions provided in this Section is the same technical reports and analyses as for the rest of this EIR/Environmental Impact Statement (EIS). No representation as to significance made in this Section represents an assessment of the magnitude of such an impact under the requirements of federal law. Under the National Environmental Policy Act (NEPA), no determination need be made for each environmental effect. The Council on Environmental Quality (CEQ) regulations implementing NEPA state that "significantly" as used in NEPA requires consideration of both context and severity/intensity. The CEQ regulations recognize that the significance of an action must be analyzed in several contexts such as the society as a whole, the affected region, the affected interests and the locality. Significance varies with the setting of the proposed action (40 CFR Section 1508.27).

For each environmental parameter, the thresholds of significance, consistent with the requirements of CEQA, are identified. These thresholds are the same considerations used in Section 4.0 (Affected Environment, Environmental Consequences and Mitigation Measures) to assess whether a potential impact of a SOCTIIP Alternative is adverse. Then, the significance of each adverse impact is identified before and after the application of mitigation. The CEQA level of significance after mitigation for each adverse impact is also identified.

7.2 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO TRAFFIC AND CIRCULATION

7.2.1 THRESHOLDS OF SIGNIFICANCE RELATED TO TRAFFIC AND CIRCULATION

7.2.1.1 Thresholds for Short Term Impacts During Construction

A SOCTIIP Alternative would result in a significant adverse impact related to short term traffic under CEQA if it:

- Causes an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system, resulting in a substantial increase in either thee number of vehicle trips, the volume to capacity ratio on roads or congestion at intersections.

- Exceeds either individually or cumulatively, a level of service standard established by a county congestion management agency for designated roads or highways.

7.2.1.2 Thresholds for Long Term Impacts

A SOCTIIP Alternative would result in a significant impact under the CEQA related to transportation and circulation when:

- An arterial intersection, freeway/tollway ramp, and/or freeway/tollway mainline segment in the SOCTIIP traffic analysis study area does not meet the adopted level of service (LOS) performance standards and, based on a comparison to the No Action Alternative, the LOS under a given SOCTIIP Alternative at that circulation facility exceeds the adopted LOS impact thresholds.

The LOS performance standards and impact thresholds that have been adopted by the various jurisdictional agencies in the study area were summarized in Section 3.0 (Traffic and Circulation).

7.2.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO TRAFFIC AND CIRCULATION

7.2.2.1 Short Term Impacts During Construction

As described in Section 3.0, trips generated during construction, related to employee commute trips, materials import and excess fill export, could adversely impact traffic operations on area arterials. These trips would occur temporarily during construction and would vary depending on the local streets used for access/egress to/from the construction area, the number of trips and the time of day those trips are made. These trips are anticipated to result in short term significant adverse impacts on traffic on area streets.

7.2.2.2 Long Term Impacts

Table 7.2-1 provides a summary of the long term adverse impacts of the SOCTIIP Alternatives related to transportation and circulation. Table 7.2-1 identifies the long term impacts anticipated under each Alternative at intersection locations and freeway/tollway ramps in the study area based on the findings of the long range (year 2025) analysis presented earlier in Section 3.0. Tables cited in this Section are provided following the last page of text in this Section. As indicated in Section 3.0, no freeway/tollway mainline segments in the study area were found to be adversely impacted by the SOCTIIP Alternatives. Table 7.2-1 also identifies the mitigation measures that are proposed to reduce or avoid adverse impacts as discussed earlier in Section 3.0, and the CEQA level of significance after mitigation. For each impact location, the scenario in which the impact occurs (i.e., committed versus build out circulation system and County of Orange versus OCP-2000 RMV land use plan) and the funding obligation for implementation of the circulation system improvements that serve as mitigation are noted.

7.2.2.3 Anlaysis Of Alternatives With Existing Conditions As The Baseline For Impact Assessment

Detailed descriptions of weekday peak hour traffic conditions under the SOCTIIP build Alternatives, assuming committed circulation system improvements and anticipated future land use, including the 14,000 du proposed RMV plan, (i.e., year 2025 Scenario 1) are provided in Section 4.2 (Long Range Traffic Conditions) in the SOCTIIP Traffic and Circulation Technical Report. Table 3.4-2, provided earlier in Section 3.4 (Operations Analysis Results), summarizes the locations on the study area circulation system where weekday peak hour deficiencies occur under existing conditions and with each build Alternative based on the performance criteria described in Section 3.2.3 (Performance Criteria for Operations). The following summarizes the number of weekday peak hour deficiencies under existing conditions and under the build Alternatives:

- Under existing conditions, deficiencies occur at three segments of I-5, 12 freeway/tollway ramps (nine I-5 ramps and three SR 241 ramps) and 10 intersections (six arterial-to-arterial and four arterial-to-freeway/tollway ramps).

- Under the build Alternatives that include the FTC-S toll road extension from Oso Parkway to I-5 with a Far East Corridor connection at I-5 (the FEC-M, FEC-W, and A7C-FEC-M Alternatives), deficiencies occur at eight segments of I-5, 15 freeway/tollway ramps (12 I-5 ramps and three SR 241 ramps) and 29 intersections (20 arterial-to-arterial and nine arterial-to-freeway/tollway ramps).

- Under the build Alternatives that include the FTC-S toll extension road from Oso Parkway to I-5 with a Central Corridor connection at I-5 (the CC Alternative), deficiencies occur at seven segments of I-5, 16 freeway/tollway ramps (13 I-5 ramps and three SR 241 ramps) and 27 intersections (18 arterial-to-arterial and nine arterial-to-freeway/tollway ramps).

- Under the build Alternatives that include the FTC-S toll road extension from Oso Parkway to Avenida La Pata (the CC-ALPV and A7C-ALPV Alternatives), deficiencies occur at 10 segments of I-5, 16 freeway/tollway ramps (13 I-5 ramps and three SR 241 ramps) and 34 intersections (25 arterial-to-arterial and nine arterial-to-freeway/tollway ramps).

- Under the AIO Alternative, deficiencies occur at 12 segments of I-5, 16 freeway/tollway ramps (11 I-5 ramps and five SR 241 ramps) and 36 intersections (25 arterial-to-arterial and 11 arterial-to-freeway/tollway ramps).

- Under the I-5 Alternative, a deficiency occurs at one segment of I-5, 11 freeway/tollway ramps (eight I-5 ramps and three SR 241 ramps) and 31 intersections (24 arterial-to-arterial and seven arterial-to-freeway/tollway ramps).

Transportation Improvements

A detailed discussion of study area transportation improvements, including the identification of the adverse impacts and beneficial effects of the build Alternatives was provided earlier in

Section 3.4.4 (Long Range Traffic Conditions – Build Alternatives) and Section 3.6 (Long-Range Mitigation Measures). Transportation improvements presented in those Sections address the circulation system deficiencies in a comprehensive context, providing a mitigation program that would be implemented with future land use development and with implementation of a selected build Alternative. No additional mitigation is proposed for the impacts identified above (impacts of the build Alternatives in comparison to existing conditions) for the following reasons:

1. The appropriate mitigation is the implementation of the projects in the MPAH and RTP that are funded or have committed funding as described in Section 3.2.5 (Future Transportation System). This mitigation will occur based on existing plans and commitments separate from any SOCTIIP project.

2. Mitigation of these impacts is the responsibility of the other agencies or the development projects that will occur in accordance with adopted plans, policies and project approvals.

3. A comparison of project build out in 2025 to existing conditions in 2001 is not accurate or realistic because it overlooks significant changes that occur within the 2025 planning horizon. An unfair comparison for analysis of project impacts results if it is not recognized that changes during the planning horizon will occur due to future development and implementation of committed roadway projects.

4. The considerations identified in 1, 2 and 3 above, lead to the conclusion that it is not reasonable or feasible to provide mitigation for a SOCTIIP build Alternative compared to existing conditions. Mitigation will be provided as outlined in Section 3.6 (Long-Range Mitigation Measures).

7.2.2.4 Central Corridor-Complete/I-5 Confluence

The Central Corridor-Complete (CC) alignment confluence of the corridor and I-5 is south of the Avenida Pico/I-5 interchange in Orange County. This connection consists of transition ramps to southbound I-5 and from northbound I-5. The conceptual design of the CC alignment FTC-S/I-5 confluence also includes the construction of a northbound and southbound frontage road system parallel to I-5 between Avenida Pico and El Camino Real. Under the current design of the ramps there are peak hour deficiencies forecasted that can not be mitigated at the I-5/Avenida Pico interchange in all of the analysis scenarios (RMV 14, 000 du and 21,000 du, committed and MPAH) that include the CC alignment FTC-S/I-5 confluence. Under such conditions, it is possible that traffic at the interchange would backup onto I-5, reducing the effective capacity on I-5 and degrading the forecasted peak hour LOSs on I-5. Therefore, the CC alignment FTC-S/I-5 connection could potentially result in a congested interchange situation in southern Orange County.

Per Federal Highways Administration (FHWA) policy, the TCA included a potential mitigation redesign of the CC connection and I-5 geometrics in Section 3.0. If a CC alignment is ultimately selected as the project, the implementation of this potential mitigation measure would be negotiated with FHWA, as it is not proposed as part of the CC Alternative, but as mitigation.

For a complete discussion of the impacts and mitigation associated with the CC-Alternative, refer to Sections 3.7.2 and 3.7.3.

7.2.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO TRAFFIC AND CIRCULATION

7.2.3.1 Short Term Impacts During Construction

A Construction Traffic Management Plan (CTMP) will be prepared and implemented during all construction related activities. Even with the CTMP, it is possible that some streets may experience substantial short term degradation in terms of level of service (LOS), congestion and delays. Therefore, even with mitigation, the short term traffic adverse impacts during construction of the SOCTIIP build Alternatives are assumed to be significant.

7.2.3.2 Long Term Impacts

As shown in Table 7.2-2, the following SOCTIIP build Alternatives will result in significant adverse impacts related to traffic and circulation which cannot be mitigated to below a level of significance:

Central Corridor-Complete (CC) Alternative.
Central Corridor- Avenida La Pata Variation (CC-ALPV) Alternative.
Alignment 7 Corridor-Avenida La Pata Variation (A7C-ALPV) Alternative.
Arterial Improvements Only Alternative (AIO).
I-5 Widening Alternative.

7.3 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO LAND USE AND PLANNING

7.3.1 THRESHOLDS OF SIGNIFICANCE RELATED TO LAND USE AND PLANNING

A SOCTIIP Alternative would result in significant impacts related to land use and planning if it:

- Conflicts with an adopted land use plan, plan policy or regulation of an agency with jurisdiction over the project, including but not limited to General Plans (GPs), Specific Plans (SPs), Local Coastal Programs (LCPs) or Zoning Ordinances (ZOs) adopted for the purpose of avoiding or mitigating an environmental effect, or conflicts with the Camp Pendleton Integrated Land Use Management Plans (INRMP).

- Conflicts with any applicable Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP).

- Physically divides an established community.

7.3.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE MITIGATION RELATED TO LAND USE AND PLANNING

7.3.2.1 Short Term Impacts During Construction

The construction of the SOCTIIP build Alternatives may require the temporary use of land for use during construction only. This may include land to accommodate construction staging, materials storage, equipment storage and other activities during construction only. At the completion of the construction of a SOCTIIP build Alternative, these areas would no longer be needed for the SOCTIIP build Alternative. Remainder parcels used for temporary construction purposes would be anticipated to be sold or retained in the right-of-way, as appropriate. The short term use of this land for the construction of the SOCTIIP build Alternatives would not be an adverse impact.

7.3.2.2 Long Term Impacts

Table 7.3-1 summarizes the potential long term land use impacts of the SOCTIIP Alternatives and identifies the significance of those impacts as required under CEQA. As shown, a number of the build Alternatives will result in significant adverse impacts related to conflicts with adopted land use plans and division of existing communities.

As of November 2002, preliminary information on the Southern Subregion NCCP was released regarding ten possible configurations for the South NCCP (South Orange County Coordinated Planning Process, http://pdsd.oc.ca.gov/soccpp/index.htm "Reserve Alternatives," (date accessed: October 2002)). The configurations vary from small to large areas of development in the undeveloped part of the SOCTIIP study area. At the time of preparation of this EIS/SEIR, information regarding these configurations was not available to assess whether or not any of the SOCTIIP build Alternatives would impact the design of that planned NCCP. A Notice of Intent to prepare an EIS/EIR for the Southern Subregion NCCP was published August 23, 2001 in the Federal Register (66 F.R. 44372). The Notice did not provide detailed information regarding the proposed Southern Subregion NCCP. Therefore, no evaluation was made for the potential impacts of the SOCTIIP Alternatives related to that threshold.

7.3.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO LAND USE AND PLANNING

Table 7.3-2 summarizes the potentially significant adverse land use impacts of the SOCTIIP Alternatives, proposed mitigation and the level of significance after implementation of the identified mitigation measures. As shown, the following Alternatives would result in significant unavoidable adverse impacts related to land use after mitigation:

FEC-W Alternative.
FEC-M Alternative.
CC Alternative.
CC-ALPV Alternative.
A7C-FEC-M Alternative.

A7C-ALPV Alternative.
AIO Alternative.
I-5 Alternative.

7.4 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO AGRICULTURAL RESOURCES

7.4.1 THRESHOLDS OF SIGNIFICANCE RELATED TO AGRICULTURAL RESOURCES

A SOCTIIP Alternative would result in significant impacts related to agricultural resources if it:

- Converts Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency (CRA), to non-agricultural use.
- Conflicts with existing zoning for agricultural use or a Williamson Act contract (agricultural preserve).
- Involves other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

In addition, the Caltrans Community Impact Assessment (CIA) Guidelines state that "The conversion of agricultural land to other uses may be a significant impact that cannot always be mitigated. In those situations, to satisfy the requirements under CEQA, the decision makers would have to conclude that social or economic factors do not make it feasible to mitigate the conversion." (Source: CIA, Caltrans Environmental Handbook, Volume 4, June 1997, pp. 51.)

7.4.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE MITIGATION RELATED TO AGRICULTURAL RESOURCES

7.4.2.1 Short Term Impacts During Construction

Short term impacts to agricultural resources are impacts due to construction that do not involve permanent conversion of agricultural resources to non-agricultural uses. This may include land to accommodate construction staging, materials storage, equipment storage and other activities during construction only. These impacts are not adverse.

7.4.2.2 Long Term Impacts

Table 7.4-1 summarizes the potential long term adverse impacts of the SOCTIIP Alternatives related to agricultural resources, including agricultural preserves, and identifies the significance of those impacts before mitigation.

7.4.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO AGRICULTURAL RESOURCES

Table 7.4-2 summarizes the potentially significant adverse impacts of the SOCTIIP Alternatives related to agricultural resources, proposed mitigation and the level of significance after implementation of the identified mitigation measures.

As shown, the following Alternatives would result in significant unavoidable adverse impacts related to agricultural resources after mitigation:

FEC-W Alternative.
FEC-M Alternative.
CC Alternative.
CC-ALPV Alternative.
A7C-FEC-M Alternative.
A7C-ALPV Alternative.
AIO Alternative.

7.5 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO SOCIOECONOMICS, ENVIRONMENTAL JUSTICE AND GROWTH INDUCEMENT

7.5.1 THRESHOLDS OF SIGNIFICANCE RELATED TO SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

An Alternative would result in a significant socioeconomic or environmental justice impact under CEQA if it:

- Adversely affects a disproportionately high number of minorities or low income individuals or households. This threshold is based on Executive Order 12898 (Environmental Justice).

- Displaces substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere. This threshold is based on Appendix G in the CEQA Guidelines.

- Displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere. This threshold is based on Appendix G in the CEQA Guidelines.

- Affects community cohesion by dividing existing neighborhoods or displacing community facilities or services. This threshold is based on Appendix G in the CEQA Guidelines.

- Results in the loss of greater than one percent of tax or other revenues that could impair a local jurisdiction or service provider from adequately providing the necessary services required and expected of the agency or jurisdiction. This threshold was defined to address potential physical effects of economic impacts from the SOCTIIP Alternatives.

- Results in the loss of a substantial number of jobs in any one jurisdiction or region. This threshold was identified to address potential economic effects of the SOCTIIP Alternatives.

An Alternative would be considered to result in a significant growth inducement impact if it:

- Induces substantial population growth in an area, either directly (for example, by proposing new homes or businesses) or indirectly (for example, through extension of roads or other infrastructure).

- Fosters economic or population growth, or the construction of additional housing, either directly or indirectly.

- Removes obstacles to population growth.

- Encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively.

7.5.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO SOCIOECONOMICS, ENVIRONMENTAL JUSTICE AND GROWTH INDUCEMENT

Table 7.5-1 summarizes the adverse impacts of the SOCTIIP Alternatives related to socioeconomics, environmental justice and growth inducement. Table 7.5-1 identifies the potential short and long term adverse impacts under each Alternative, the mitigation measures proposed to reduce or avoid adverse impacts, and the CEQA level of significance of each impact after mitigation.

7.5.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO SOCIOECONOMICS, ENVIRONMENTAL JUSTICE AND GROWTH INDUCEMENT

As shown in Table 7.5-1, none of the SOCTIIP Alternatives would result in adverse impacts related to Environmental Justice. However, the following Alternatives would result in significant unavoidable adverse impacts related to socioeconomics:

CC Alternative.
A7C-ALPV Alternative.
I-5 Alternative.

All SOCTIIP build Alternatives and the No Action Alternatives could potentially contribute to impacts relating to facilitating or supporting growth in the study area. The facilitated growth, in and of itself is not an adverse impact. However, the effects of this facilitated growth could result in impacts on a variety of areas, including agricultural resources, hydrology/drainage, water quality, air quality, noise, biological resources, aesthetics, cultural resources, recreation, mineral resources, public services, and utilities and services. Potential impacts in these areas, as well as

related mitigation measures, if appropriate, are discussed in the respective Cumulative Impacts sections addressing these issues.

7.6 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

7.6.1 THRESHOLDS OF SIGNIFICANCE RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

No thresholds of significance are available for pedestrian and bicycle facilities; however, since pedestrian and bicycle facilities may be considered public facilities and recreation facilities the same thresholds that apply to these facilities apply to pedestrian and bicycle facilities. A SOCTIIP Alternative would result in significant adverse impacts if it resulted in the following:

- Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or performance objectives for pedestrian facilities, bicycle facilities and trail type facilities located within existing and proposed parks.

- Increases the use of existing recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Includes the construction of pedestrian and bicycle facilities which might have an adverse physical effect on the environment.

7.6.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED PEDESTRIAN AND BICYCLE FACILITIES

7.6.2.1 Short Term Impacts During Construction

Short term impacts to bicycle and pedestrian facilities during construction include air quality impacts, closures and re-routing of facilities during construction. On-road pedestrian and bicycle facilities would be re-routed with their associated roads during construction. Off-road bicycle and pedestrian facilities like regional riding and hiking trails would either be temporarily closed or re-routed during construction. Impacts to bicycle and pedestrian facilities during construction are summarized in Table 7.6-1 and are described in detail in Section 4.5.

7.6.2.2 Long Term Impacts

Long term impacts to bicycle and pedestrian facilities include permanent visual impacts to vistas along trails and permanent acquisition of trails. No long term impacts are anticipated to occur at on-road pedestrian and bicycle facilities because these facilities occur along roads that will be provided either underpasses or overpasses during operation of the SOCTIIP Alternatives. The facilities are adjacent to roads and already have noise and air quality impacts and obstructed

views, therefore no adverse air quality, noise or visual impacts to on-road pedestrian and bicycle facilities are anticipated to occur. Long term impacts to pedestrian and bicycle facilities are summarized in Table 7.6-1 and are described in detail in Section 4.5.

7.6.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

As shown in Table 7.6-1, all of the SOCTIIP corridor Alternatives would result in significant adverse impacts to pedestrian and bicycle facilities after mitigation.

7.7 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO NOISE

7.7.1 THRESHOLDS OF SIGNIFICANCE RELATED TO NOISE

The thresholds used for assessing the significance of short and long term noise impacts associated with the SOCTIIP Alternatives, consistent with the requirements of CEQA, are described as follows.

Under CEQA, short term noise levels from construction activities are measured against the applicable local municipality's Noise Ordinance to assess whether there are any short term noise impacts. Construction activities complying with the applicable local Noise Ordinance are considered under CEQA to result in no significant adverse short term noise impacts. Construction activities which result in short term adverse noise levels which exceed the applicable local Noise Ordinance are considered significant. The Orange County Noise Ordinance was used to assess noise impacts from construction of the SOCTIIP build Alternatives on uses in unincorporated areas and the incorporated cities with the same Noise Ordinance as well as the Cities of Laguna Hills and San Juan Capistrano, which do not have relevant Noise Ordinances. The City of San Clemente Noise Ordinance was used to assess construction noise impacts of the SOCTIIP build Alternatives for land uses in the City of San Clemente.

To cause a significant adverse impact, a project alternative must first cause a substantial increase in future CNEL levels at a sensitive receptor.

An Alternative that causes a noise level increase of 3 dB or more is considered to result in a substantial noise increase. The increase in noise level caused by the Alternative is the difference in the future noises level with the project alternative and the future noise level without the project alternative. The increase in future noise levels with an Alternative, compared to existing conditions, will be a result of both the Alternative and overall growth in the region. If the noise level increase over existing conditions is greater than 3 dB and the Alternative causes more than 1 dB of this increase, that project alternative is considered to result in a substantial combined noise increase. If either increase is realized, a second condition must occur for a significant adverse noise impact to result from the Alternative.

The second condition that must occur for an impact to be considered significant and adverse in terms of the local municipalities' CNEL standards is that the increase results in a future noise

level which exceeds the local municipalities' CNEL standard. All the municipalities in south Orange County have established an exterior residential CNEL standard of 65 CNEL. The County does not have an applicable noise standard relating to parks. However, all the Cities in the study area have established a 65 CNEL noise standard for parks. For all municipalities in the SOCTIIP study area, noise levels were evaluated at potentially impacted park picnic areas, playgrounds and areas of frequent human activity.

Analysis of impacts in terms of local municipalities' CNEL standards is applicable to areas along new roads constructed by the SOCTIIP Alternatives and along existing roads that will be modified by the SOCTIIP Alternatives (i.e. addition of lanes). It is also applicable to roads that will not be physically modified by the SOCTIIP Alternatives but on which traffic volumes will change as a result of the SOCTIIP Alternatives.

7.7.2 ADVERSE IMPACTS RELATED TO NOISE AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.7.2.1 Short Term Impacts During Construction

Although construction noise represents a short term impact on ambient noise levels, construction equipment and construction activities can generate high noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. For a summary of construction noise impacts, refer to Table 7.7-1. Construction noise activities can be divided into the following five broad categories based on their potential to generate noise:

(1) pile driving.
(2) heavy grading.
(3) general construction activities.
(4) nighttime demolition.
(5) haul routes.

Implementation of the mitigation measures provided earlier in Section 4.6 will reduce the construction related noise impacts for all the SOCTIIP build Alternatives, except the I-5 Alternative, to below a level of significance. The I-5 Alternative will include nighttime demolition along I-5. Measure 5 (Nighttime Demolition) reduces the impact of this activity, but not to below a level of significance. Measure N-5 allows residents to obtain hotel vouchers so that they can temporarily move out the impact zone of nighttime demolition. However, this is an inconvenience for the residents and many residents may prefer to stay in their residences and tolerate the demolition noise. Therefore, night construction noise impacts will not be mitigated to below a level of significance only for the I-5 Alternative and will remain significant after mitigation.

7.7.2.2 Long Term Impacts

Noise levels were modeled for the SOCTIIP Alternatives to determine long term impacts on sensitive receptors. These are the noise impacts from the noise generated on the highways that

will be constructed or physically altered by the specific Alternative. The analysis in Section 4.6.2 indicates that all of the build Alternatives result in an adverse noise impact and the only practical way to mitigate outdoor traffic noise levels is through the construction of noise barriers (Measure N-8).

The barrier will reduce the noise levels such that the build Alternatives will not cause a substantial noise increase (i.e. cause an increase of more than 3 dB) or contribute considerably to a substantial increase over existing conditions (i.e. cause an increase of more than 1 dB where the noise level is projected to increase over existing conditions by more than 3 dB). The barriers will mitigate this impact of the build Alternatives to below a level of significance.

7.7.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO NOISE REMAINING AFTER MITIGATION

All the significant adverse noise impacts along all the SOCTIIP build Alternatives would be mitigated to below a level of significance with the implementation of the mitigation measures discussed in Section 4.6. However, as discussed earlier in Section 4.6.4, there is a possibility that mitigation will not be implemented in all locations. If mitigation is not implemented at any location, for reasons outside the control of the implementing agency, there would be a significant adverse impact at those locations.

7.8 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO AIR QUALITY

7.8.1 THRESHOLDS OF SIGNIFICANCE RELATED TO AIR QUALITY

The South Coast Air Quality Management District (SCAQMD) has established specific thresholds to assist local agencies in determining when a project would contribute substantially to an existing or future violation of an air quality standard and thus have a significant effect on the environment in the South Coast Air Basin (SCAB). Because the San Diego Air Pollution Control District does not have recommended thresholds of significance for air quality impacts, the SCAQMD thresholds were used to evaluate air quality impacts in the San Diego Air Quality Basin. These thresholds are shown in Table 7.8-1. The TCA has identified these SCAQMD thresholds as appropriate for determining the significance of the potential air quality impacts of the SOCTIIP Alternatives.

Increases in CO concentrations are significant if they cause an exceedance of state 1-hour or 8-hour standards. Any project-related one-hour average increase in CO greater than one ppm is considered significant if background levels already exceed the state 1-hour CO standard. An 8-hour average increase in CO of 0.45 ppm is significant if background levels exceed the state eight-hour CO standard.

The SCAQMD CEQA Air Quality Handbook also contains quarterly thresholds of significance. However, the Handbook states that if emissions on an individual day exceed the daily thresholds shown in Table 7.8-1, project impacts should be considered significant and quarterly emissions need not be analyzed.

7.8.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO AIR QUALITY

Table 7.8-2 summarizes the short and long term air quality impacts and mitigation measures, by Alternative.

7.8.2.1 Short Term Impacts During Construction

The short term construction emissions due to the proposed build Alternatives with mitigation measures will be substantially reduced but cannot be mitigated to below a level of significance, for all the SOCTIIP build Alternatives, as shown in Table 7.8-2.

7.8.2.2 Long Term Impacts

Regional air quality emissions decrease from existing conditions with or without the SOCTIIP Alternatives. The amount of HC, CO and NOx emissions decrease in future years compared to existing conditions. PM10 emissions increase in future years compared with existing conditions, although during intervening years, prior to 2025, the emissions are reduced. Overall, regional air quality indicated by traffic emissions will be better in future years compared to existing conditions.

The long term regional air quality impact due to the SOCTIIP build Alternatives with mitigation measures will be reduced, however there remains a significant adverse impact for NO_x emissions for all Alternatives as NO_x emissions exceed significance thresholds.

7.8.2.3 Toxic Air Contaminants

<u>Overview of Analysis Process</u>

The air quality analysis for the SOCTIIP included a toxic air contaminants (TAC) evaluation, focused on diesel particulate matter (DPM). That evaluation is provided in Appendix B of the Air Quality Assessment (Mestre Greve Associates, 2003) and is summarized in this Section,

In 1998 the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines (Diesel Particulate Matter or DPM) as a Toxic Air Contaminant (TAC). As a part of the identification process, the ARB's Office of Environmental Health Hazard Assessment (OEHHA) evaluated the potential for DPM to affect human health. The OEHHA found that exposures to DPM resulted in an increased risk of cancer and an increase in chronic noncancer health effects including a greater incidence of cough, labored breathing, chest tightness, wheezing, and bronchitis. DPM is one of several airborne TACs. ARB and South Coast Air Quality Management District (SCAQMD) studies show that DPM contributes approximately 71% of the potential inhalation cancer risk.

During an exhaustive 10-year scientific process, the OEHHA found that exposures to DPM resulted in an increased risk of cancer and an increase in chronic noncancer health effects

including a greater incidence of cough, labored breathing, chest tightness, wheezing, and bronchitis. The OEHHA estimated that based on available studies, the potential cancer risk from exposure to DPM of 1 microgram per cubic meter ($\mu g/m^3$) ranged from 130 to 2,400 excess cancers per million. The ARB's Scientific Review Panel (SRP) approved the OEHHA's determination concerning health effects and approved these values as the range of risk for DPM. This wide range demonstrates the uncertainty in the cancer risk from DPM. The SRP concluded that a value of 300 excess cancers per million people per $\mu g/m^3$ of DPM was appropriate as a point estimate of unit risk factor (URF) for DPM. There is not yet a scientific consensus concerning the appropriate URF for DPM. As of early 2002, the EPA decided that the literature did not support identifying a URF for DPM.

To address the impacts of DPM, the ARB and EPA have enacted new diesel fueled vehicle emissions standards and diesel fuel rules that will go into effect in 2007. New emissions control measures will be required for new vehicles and reformulated diesel fuels are required to enable these measures. The emissions calculations in this report used EMFAC2002 to calculate emission factors. EMFAC2002 is a computer model published by the ARB that calculates vehicular emission factors. Emission factors calculated with EMFAC2002 include the effects of the new diesel fueled vehicle emissions standards.

A general examination of the potential impacts of DPM associated with the SOCTIIP Alternatives was conducted. At this time, tools and methodologies for assessing DPM impacts are limited, and not all state and federal transportation agencies even agree that DPM impacts can be modeled in a meaningful way. The TCA as the Lead Agency under CEQA determined that general interim methodologies developed by the SCAQMD and the ARB were appropriate to use to develop an estimate of the DPM related impact of the SOCTIIP Alternatives. This study examined potential DPM impacts in two areas, at the northern end of the proposed corridor build alternatives south of Antonio Boulevard, and along I-5 as it passes through San Clemente south of Avenida Pico. All the proposed corridor build Alternatives have similar alignments at the north end. A generalized alignment was modeled under the initial configuration (i.e., a 4-lane highway) and ultimate configuration (i.e., an 8-lane highway). Concentrations and health risks are calculated for receptors along the roadway and at the nearest existing residential uses. Concentrations were modeled for receptors along the corridor build Alternatives for three scenarios, Initial, Initial widened to the Ultimate in 2025 and Ultimate. Concentrations were modeled for receptors along I-5 for four scenarios; no project conditions, I-5 Widening alternative conditions, corridor build conditions where the corridor intersects I-5 near Avenida Pico, and corridor build conditions where the corridor intersects I-5 near the Orange County/San Diego County border.

Specific detailed methodologies for assessing the impacts of DPM for roadway construction projects have not been developed. General interim methodologies have been developed. SCAQMD has published "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions," to assess impacts of DPM near truck stops and warehouse facilities. Further, in their "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel Fueled Engines and Vehicles," the ARB modeled several "Risk Characterization Scenarios," two of which were high and low volume freeways. The methodology used in this analysis was developed from these two sources. The process involves calculating DPM

concentrations along the road using a dispersion model. The resulting concentrations are then multiplied by a Unit Risk Factor (URF) to determine the potential cancer risk from the DPM. To determine the non-cancer risk, the concentration is divided by the Reference Exposure Level (REL) to determine the Hazard Index.

Appendix B in the Air Quality Assessment provides a detailed discussion of the dispersion modeling parameters used in this analysis. The CAL3HCR model was used for the dispersion modeling with one year of weather data from John Wayne Airport (the closest weather data available). The goal of the dispersion modeling effort is to determine the concentrations of DPM. Therefore, only diesel particulate emissions are modeled. Emission factors used in the analysis were generated by the EMFAC2002 (version 2.2) model published by the ARB. This model provides the most current available data for motor vehicle emissions in the State of California. The calculation of cancer risk assumes exposure to DPM for a 70-year period. In the future, emissions of DPM will be reduced through implementation of emissions control measures and fleet turnover (i.e., the replacement of older vehicles with new vehicles). To account for this, a time averaged emission factor was calculated. Emissions factors for 2010, 2020, 2030 and 2040 were calculated using the EMFAC2002 program (2040 is the furthest year in the future that the model projects). Assuming an opening year of 2008 for the project, the average emission factor for the 70-year period was calculated by multiplying the 2010 emission factor by 7 years, the 2020 and 2030 emission factors by 10 years each and the 2040 emission factor by 43 years. These values were then summed and divided by 70 years to give the 70-year average emission factor.

Table 2.1-1 in Appendix B in the Air Quality Assessment shows the calculated average emission factors for vehicles on I-5. The percentage of diesel-fueled vehicles is important because the total number of vehicles on a road affects how pollutants disperse from the road. To accurately include the effects of all the vehicles on the road on pollutant dispersion, the total traffic volume needs to be input into the model. Then the average DPM emission factor per diesel fueled vehicle is multiplied by the percentage of diesel vehicles to obtain the average DPM emission factor for all vehicles on the road. This emission factor was then entered into the dispersion model.

Along the northern extent of the corridor build alternatives, the future traffic volumes are projected to be different under conditions with and without tolls. Therefore, DPM concentrations were calculated separately under both conditions and the average taken. Based on data collected on existing SR 241, the truck mix expected on the corridor alternatives is 3% heavy trucks and 3% medium trucks. Table 2.1-2 in Appendix B in the Air Quality Assessment presents the average diesel vehicle PM10 emissions for vehicles on the corridor for 2010, 2020, 2030 and 2040.

The earliest the corridor Alternatives would enter toll free conditions is 2025. Toll-free conditions would likely not occur until much later, after 2040. As the traffic volume along the corridor is much greater under toll free conditions (approximately 43% greater), the earlier the corridor enters toll free conditions, the higher the 70-year average DPM concentrations along the corridor. Therefore, assuming that toll free conditions start in 2025 is a worst-case assumption. Table 2.1-3 shows the average emissions for the assumed toll years (2008-2025) and toll-free

years (2026-2078). The 2008-2025 emission factor was calculated by averaging over the entire 17 year period the 2010 emission factor that will occur over 7 years and the 2020 emission factor that will occur over 10 years. The 2025-2078 emission factor was calculated by averaging over the entire 53 year period the 2030 emission factor that will occur over 10 years and the 2040 emission factor that will occur over 43 years. EMFAC2002 only calculates emission factors out to the year 2040. 2040 emissions are the most representative of years after 2040 as no other data source is available. Some additional reduction in emissions would be expected in the years past 2040 due to advances in emissions reduction technology. Therefore, the use of 2040 emissions represents a worst-case assumption. The results of these calculations are presented in Table 2.1-3 in Appendix B in the Air Quality Assessment. The average DPM emissions from diesel-fueled vehicles are shown along with the average DPM emissions for all vehicles on the road for the two time periods.

To calculate the 70-year average DPM concentrations along the corridor, the CAL3QHCR model was run twice, once with the 2008-2025 average emission factors and toll traffic conditions and once with the 2026-2078 average emission factors and no-toll traffic conditions. The 70-year DPM concentrations were calculated by averaging over the entire 70 year period the 2008-2025 concentrations that will occur over 17 years and the 2026-2078 concentrations that will occur over 53 years.

Two corridor scenarios were modeled, the initial, a 4-lane highway, and the ultimate, a 8-lane highway. For each, the traffic volumes are the same but the speeds vary because there would be more congestion on the smaller facility. The hourly volumes and speeds used for the modeling along the corridor are presented in Table 2.1-6 in Appendix A in the Air Quality Assessment.

This analysis is intended to describe potential impacts of DPM emissions on health risks of people living adjacent to I-5 and the northern extent of the proposed corridor in a general manner. This analysis does not analyze specific residential areas, but rather analyzes the entire area along the I-5 through San Clemente and the northern extent of the corridor build alternatives in a general approach. The roadway geometry that is assessed in the modeling effort generally represents the roadway alignment of the I-5 through San Clemente, south of Avenida Pico and the alignment of the northern extent of proposed corridor build alternatives south of Antonio Parkway. Existing and design roadway widths were used for the modeling.

Determination of Cancer Risk

The cancer risks from DPM occur exclusively through the inhalation pathway. The inhalation unit risk factor for diesel particulate was established by ARB as 300 in one million per continuous exposure of 1 $\mu g/m^3$ of DPM over a 70-year period (Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, November 7, 2002). Therefore, if a group of one million people were living in an area exposed to a concentration of 1 $\mu g/m^3$ of DPM over a 70-year period, 300 of them would have an increased risk of contracting cancer as a result of the exposure. If the concentration is lower, the corresponding exposure and risk are also lower.

A 70-year lifetime exposure is assumed for all receptor locations except for off-site workers (i.e., receptor locations in commercial or industrial areas). The LEA for all residential or sensitive receptors is 1.0. To account for the fact that people working in the area are exposed to DPM for less time, the LEA for off-site workers is 0.14. Health risks for people working in the vicinity of DPM concentrations are lower than residents because their cumulative exposure is lower. People who actually live in areas of higher concentrations have a higher risk because they have a higher exposure. Exposures to school children are even lower than for workers because they spend about the same amount of time per day at school as a worker does at work but this only occurs for a maximum of 12 years rather than the 70-year lifetime exposure used to determine cancer risk.

Determination of Non-Cancer Risks

The relationship for the non-cancer health effects of DPM was assessed based on an equation which considered the Hazard Index (HI) which is an expression of the potential for non-cancer health effects; the annual average DPM concentration ($\mu g/m^3$)' and the Reference Exposure Level (REL) for DPM which is the DPM concentration at which no adverse health effects are anticipated. The chronic REL for DPM was established by OEHHA as 5 μg/m3.

Threshold of Significance for DPM

The SCAQMD CEQA Handbook has established a cancer risk significance threshold to evaluate the incremental health impact levels associated with projects in the SCAB (Section 6.2). This threshold is 10 in one million (i.e., 1.0×10^{-5}). The Handbook was published in 1993. Although portions of it have been subsequently updated, this threshold has not changed. The SCAQMD has recently reaffirmed this threshold (Comment letter from SCAQMD on Draft Environmental Impact Report No. 573 dated February 22, 2000 signed by Steve Smith, SCAQMD Program Supervisor, Planning, Rules, and Area Sources.) Additionally, a review of thresholds of significance by regulation or adopted by various agencies was undertaken. Over thirty documents with references to acceptable levels of cancer risk were reviewed. This review indicated that the 10 in one million is an appropriate threshold of significance for evaluating significance of cancer risk from DPM. This equates to a concentration of DPM of 0.0333 $\mu g/m^3$ for a residential receptor. Criteria developed in SCAQMD's "Risk Assessments Procedures for Rules 1401 and 212" was used to evaluate non-cancer impacts. A Hazard Index greater than 1 is considered significant.

DPM Impact Analysis Along I-5

Four scenarios were modeled along I-5 as it passes through San Clemente to characterize how DPM risks may be affected by the project in this area:

- No project scenario.
- I-5 Widening Project Alternative Scenario

- Scenario where a corridor is constructed that intersects I-5 at Avenida Pico, which is representative of the CC Alternatives.

- Scenario where a corridor is constructed that intersects I-5 near the Orange County/San Diego County border which is representative of the FEC-M, FEC-W and A7C-FEC-M Alternatives.

Modeled Concentrations

Table 7.8-2A presents the modeled 70-year average DPM concentrations along I-5 for the four scenarios. Concentrations were modeled for six receptors, three on either side of I-5 at distances of 6.1 meters (m), 20 feet (ft), 30.5m (100 ft) and 122.0m (400 ft). Table 7.8-2A shows that concentrations on the inland side of I-5 (that is, the side of I-5 to the northeast) are greater than on the coastal side of I-5. Concentrations decrease relatively rapidly as the distance from the road increases.

Calculated Cancer Risks

Table 7.8-2B presents the cancer risk calculated from the concentrations presented in Table 7.8-2A and the equation described earlier. The highest non-residential cancer risk would be 8.9 which is not significant (non-residential cancer risks can be determined by multiplying the values in Table 7.8-2B by 0.14 to account for the decreased exposure time). The cancer risk per million is presented for the six receptors and four scenarios. The last three columns in Table 7.8-2B compare the I-5 widening and corridor build conditions with the No Action conditions.

Table 7.8-2B shows that cancer risks along I-5 are in excess of the significance threshold of 10 in one million. Along the inland side of the freeway the risk exceeds the significance threshold more than 122m (400') from the roadway. Along the coastal side, residences within about 61m (200') are exposed to DPM that results in a cancer risk in excess of the significance threshold. This occurs under the no project conditions as well as the corridor build conditions. These results are lower than the findings of the SCAQMD MATES-II report and ARB Diesel Risk Reduction plan. This is due to the use of newer emission factors that include DPM reduction measures that will be implemented in the future. These reduction measures were developed after the MATES-II study and in conjunction with Diesel Risk Reduction Plan and are not reflected in those reports.

The third and second to last columns show that the I-5 widening and corridor build option where a connection would be made at Avenida Pico result in only a slight increase in cancer risk. The significance threshold was developed to assess the incremental impact of a project accounting for the fact that other risk sources exist. The increase in cancer risk due to the project is much less than the significance threshold. Therefore, the implementation of the corridor build Alternatives with a connection at Avenida Pico would not result in a significant adverse impact related to increased cancer risk along I-5 as a result of increased DPM exposure.

The last column of Table 7.8-2B shows that implementation of a corridor build Alternative where the corridor connects to I-5 near the Orange County/San Diego County border would reduce cancer risks along I-5 through San Clemente. This is due to lower traffic volumes on the freeway. The greatest reductions in risk would occur closest to I-5. The reductions of cancer

risk over the no project conditions are less than the significance threshold. Because the implementation of the corridor build alternatives with a connection to I-5 at the Orange County/San Diego County border would actually decrease cancer risk along I-5, they would not result in a significant impact.

The greatest reductions in risk with the corridor build Alternative where the corridor connects to I-5 near the Orange County/San Diego County border compared to the I-5 Widening Alternative and the corridor build Alternative where the connection is made to I-5 at Avenida Pico approaches the 10 per million significance threshold. The reduction in risk with the corridor build Alternative with the Orange County/San Diego Count border connection varies in magnitude from a minor decrease to a more substantial decrease of 6.5 in one location.

Calculated Non-Cancer Risks

Table 7.8-2C presents the non-cancer risk calculated from the concentrations presented in Table 7.8-2A and the equation discussed earlier. The Hazard Index is presented for the six receptors and four scenarios. The last three columns in Table 7.8-2C compare the corridor build conditions with the no project conditions.

Table 7.8-2C shows that Hazard Indices along I-5 are well below the significance threshold of 1. Therefore, there are no significant non-cancer health impacts along I-5 either with or without the project. The last three columns show that the effects of implementation of the corridor build alternatives would vary from a very slight reduction (most of the locations with the connection at the San Diego County border), to only a slight increase with the I-5 Widening or Avenida Pico connection.

Impact Analysis Along Corridor Build Alternatives

DPM concentrations were modeled for ten receptors along the northern extent of the corridor build Alternatives. Five receptors were located along either side of the corridor at distances of 6.1m (20'), 15.2m (50'), 30.5m (100'), 381m (1250'), and 762m (2500'). At the northern extent of the corridor build Alternatives, the nearest residential receptors are 762m (2500') from the corridor. There is a non-residential receptors located adjacent to the corridor (Tesoro High School).

Modeled DPM Concentrations

Table 7.8-2D presents the modeled DPM concentrations along the northern extent of the corridor build alternatives for the two corridor configurations, the initial 4-lane, and ultimate 8-lane corridors under with and without toll conditions. As discussed above, there is a substantial difference in the traffic volumes under the toll and toll-free conditions. The earliest the corridor would become toll-free is 2025. Because the toll-free traffic volumes are greater than the toll volumes, assuming this transition (toll to toll-free) occurs earlier results in the highest projected DPM concentrations. Concentrations are presented for the 2008-2025 time period which assumes toll conditions and for the 2026-2078 time period which assumes toll free conditions.

The concentrations in Table 7.8-2D were averaged to determine 70-year average concentrations for three scenarios:

- The first scenario assumes that an initial (4-lane) corridor is constructed and is not widened to the ultimate (8-lane) corridor in the 70-year analysis period.
- The second scenario assumes that the initial four lane corridor is constructed and these in widened to the ultimate eight lane corridor in 2025.
- The third scenario assumes the ultimate eight lane corridor is constructed and remains as eight lanes for the entire 70-year analysis period.

All these scenarios assume toll traffic volumes for the 2008-2025 time period and toll free traffic volumes for the 2026-2078 time period. The resulting 70-year average concentrations are presented in Table 7.8-2E.

Calculated Cancer Risks

Table 7.8-2F presents the cancer risk calculated from the concentrations presented in Table 7.8-2E and the equation discussed earlier. The highest non-residential cancer risk would be 1.7 which is not significant (non-residential cancer risks can be determined by multiplying the values in Table 7.8-2F by 0.14 to account for the decreased exposure time). The cancer risk per million is presented for the ten receptors and three scenarios.

Table 7.8-2F shows that cancer risks are projected to exceed the cancer risk significance threshold of 10 per million directly along the corridor to the west at a distance of 6.1m (20') from the edge of the corridor. The typical right-of-way for the corridor build alternatives includes at least 20 feet from the edge of the travel way; in most cases there is an even greater distance of 28 to 34 feet. At 15.2m (50') and beyond, increases are below the threshold of significance. In most cases, any receptors would be located outside the area with a significant cancer risk. The nearest existing residential receptors at the northern extent of the corridor are located 762m (2500') feet from the corridor where the cancer risk is well below the threshold. Therefore, the corridor build Alternatives will not result in a significant adverse impact related to increased cancer risks as a result of increased DPM exposure along the northern extent.

Several corridor Alternatives pass directly adjacent to residential developments near the southern extent (north of the connection with I-5). However, traffic volumes at the southern extents of the corridors are lower than at the northern extent, which was the area that was modeled for this analysis. To estimate the DPM concentrations at the southern end of the corridor they can be scaled by the ratio of traffic volumes at the northern and southern end. Note that this analysis does not take into account the different alignments of the corridor Alternatives at the southern end but provides a reasonable estimate of the concentrations. This analysis shows that the traffic volumes are lowered such that DPM concentrations would be reduced as to not result in a cancer risk greater than 10 per million. Therefore, it is expected that the corridor build Alternatives would not result in a significant adverse impact related to increased cancer risks as a result of increased DPM exposure along the southern extents.

Calculated Non-Cancer Risks

Table 7.8-2G presents the non-cancer risk calculated from the concentrations presented in Table 7.8-2E and the equation discussed earlier. The Hazard Index is presented for the ten receptors and three scenarios. Table 7.8-2G shows that Hazard Indices along the northern extent of corridor build Alternatives are well below the significance threshold of 1. As discussed above, traffic volumes along the corridor build Alternatives are projected to be lower as the corridor extends south. This results in lower DPM concentrations along the corridor build Alternatives to the south and correspondingly lower Hazard Indices on the southern segments of the corridor Alternatives. Therefore, there are no significant adverse non-cancer health impacts related to DPM along the corridor build Alternatives.

Mitigation

None of the SOCTIIP Alternatives by itself is projected to result in a significant impact and no mitigation is required. Congestion and slow speeds result in greater DPM emissions, concentrations and cancer risks compared to congestion free facilities. Reducing traffic congestion is a primary purpose of the project. No other project specific mitigation for DPM is available for a transportation facility where vehicles are moving at a steady pace on the facility. The reduction of DPM is planned on a statewide basis by CARB and EPA through emission standards and fuels as noted in Section 1.1, Background on Diesel Particulates. Other potential mitigation for DPM has focused on facilities with concentrations of trucks such as truck stops and warehouse distribution centers where operations can be controlled; this type of mitigation is not applicable to a public roadway.

7.8.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO AIR QUALITY

As shown in Table 7.8-2, the following Alternatives will have significant adverse construction impacts associated with CO, HC, NO_x and PM_{10} emissions.

FEC-W Alternative.
FEC-M Alternative.
CC Alternative.
CC-ALPV Alternative.
A7C-FEC-M Alternative.
A7C-ALPV Alternative
AIO Alternative.
I-5 Alternative.
No Action Alternative – RMV Development Plan.

Also shown in Table 7.8-2, the following Alternatives would have significant adverse operations impacts due to NO_x that exceed the SCAQMD thresholds:

FEC-W Alternative.
FEC-M Alternative.

CC Alternative.
CC-ALPV Alternative
A7C-FEC-M Alternative.
A7C-ALPV Alternative.
AIO Alternative.
I-5 Alternative.

The I-5 Alternative will also have significant adverse impacts due to HC that exceeds the SCAQMD threshold. The No Action Alternative results in significant increases in emissions for HC and CO. As discussed above, the SOCTIIP alternatives will not result in significant adverse cancer and non-cancer impacts related to DPM.

7.9 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WATERWAYS, FLOODPLAINS AND HYDROLOGIC SYSTEMS

7.9.1 THRESHOLDS OF SIGNIFICANCE RELATED TO WATERWAYS, FLOODPLAINS AND HYDROLOGIC SYSTEMS

A SOCTIIP Alternative would result in significant impacts related to waterways, floodplains and hydrologic systems if it:

- Substantially depletes groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

- Substantially alters 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 alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increases the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

- Creates or contributes runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

- Places housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other hazard delineation map.

- Places structures within a 100-year flood hazard area which would impede or redirect flood flows.

- Exposes people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

- Expose people or structures to significant risk of loss, injury or death involving inundation by seiche, tsunami or mudflow.

7.9.2 ADVERSE IMPACTS RELATED TO WATERWAYS, FLOODPLAINS AND HYDROLOGIC SYSTEMS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

No adverse impacts related to waterways, floodplains and hydrologic systems would occur due to loss of wells, lowering of groundwater levels, and encroachment into the 100-year floodplain of a watershed with the incorporation of Project Design Features (PDFs). No significant risks related to loss, injury of death due to flooding by failure of levee or dam or seiche, tsunami or mudflow are expected to occur as a result of the SOCTIIP Alternatives.

7.9.2.1 Short Term Impacts During Construction

With the incorporation of (PDFs), implementation of the Storm Water Management and the Storm Water Pollution Prevention Plan, short term impacts for construction activities are managed and do not result in a significant adverse impact.

7.9.2.2 Long Term Impacts

FEC-W Alternative

The FEC-W Alternative will not result in significant adverse impacts related to encroachment, reduction in floodplain and channel size at Cañada Gobernadora, San Juan Creek, San Mateo Creek or San Onofre Creek.

FEC-M Alternative

The FEC-W Alternative will not result in significant adverse impacts related to encroachment, reduction in floodplain and channel size at Cañada Gobernadora, San Juan Creek, San Mateo Creek or San Onofre Creek.

CC Alternative

The CC Alternative would result in significant adverse impacts due to a longitudinal encroachment of the roadway embankment on the Cañada Chiquita floodplain, just north of the confluence with San Juan Creek. These effects, which consist of impacts to existing floodplain and erosion and sedimentation patterns, could be avoided by the implementation of design refinements to the CC Alternative, based on more detailed hydraulic analyses. Such refinements may include shifting the horizontal alignment of the highway to the west such that the embankment did not encroach onto the Cañada Chiquita floodplain. With the incorporation of the PDFs, this impact will be mitigated.

The culvert crossings for the CC Alternative at Cañada Chiquita and Segunda Deshecha Cañada have not been designed. It is anticipated that any possible adverse impacts to floodplain or sedimentation and scour may be avoided. The final design of these crossings, based on more detailed hydraulic analyses, will include project features to minimize adverse impacts to the existing floodplain as well as existing erosion and sedimentation patterns. With the incorporation of the PDFs, this impact will be mitigated.

A7C-ALPV Alternative

The A7C-ALPV Alternative would result in significant adverse impacts due to the east-west connector crossing at Cañada Chiquita. These effects, which consist of impacts to the existing floodplain and potential changes to erosion and sedimentation patterns may be avoided by the implementation of design refinements to the A7C-ALPV Alternative, based on more detailed hydraulic analyses. These refinements could include adjustments to the highway embankment fill such that the east-west connector crossing did not encroach onto Cañada Chiquita. With the incorporation of the PDFs presented, this impact will be mitigated.

The A7C-ALPV Alternative may pose adverse impacts on the culvert crossing at Segunda Deshecha Cañada; however, this crossing has not been designed. It is anticipated that the final design of this crossing, based on more detailed hydraulic analyses, will include project features to minimize adverse impacts to the existing floodplain as well as existing erosion and sedimentation patterns. With the incorporation of the PDFs presented, this impact will be mitigated.

A7C-FEC-M Alternative

The A7C-FEC-M Alternative will not result in significant adverse impacts related to encroachment, reduction in floodplain and channel size at San Juan Creek, San Mateo Creek or San Onofre Creek.

AIO and I-5 Alternatives

The AIO and I-5 Alternatives will not have any significant adverse impacts to waterways, floodplains and hydrologic systems because they are in developed areas and all drainages have been placed in concrete channels which are anticipated to accommodate the flows associated with the improvements under these Alternatives.

7.9.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO WATERWAYS, FLOODPLAINS AND HYDROLOGIC SYSTEMS REMAINING AFTER MITIGATION

No significant adverse impacts for floodplains and hydrologic systems remain with the incorporation of the PDFs.

7.10 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WATER QUALITY

7.10.1 THRESHOLDS OF SIGNIFICANCE RELATED TO WATER QUALITY

A SOCTIIP Alternative would result in significant impacts related to water quality if it:

- Violates any water quality standards or waste discharge requirements.
- 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.
- Creates or contributes runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provides substantial additional sources of polluted runoff.
- Substantially degrades water quality.

7.10.2 ADVERSE IMPACTS RELATED TO WATER QUALITY AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.10.2.1 Short Term Impacts During Construction

The short and long term impacts of the SOCTIIP Alternatives related to water quality are discussed in Section 4.9. Mitigation measures and their applicability are shown in Table 4.9-7. Most construction impacts of the SOCTIIP build Alternatives related to water quality would be due to increased silt and sediment load carried by runoff from unpaved areas during construction and spills of pollutants from construction staging areas. These impacts would be prevented, controlled and/or mitigated, as appropriate with Project Design Features (PDFs) and with the implementation of the Storm Water Management Plan (SWMP) and Storm Water Pollution Prevention Plan (SWPPP).

7.10.2.2 Long Term Impacts

Long term impacts of the SOCTIIP build Alternatives related to water quality (SWMP) are substantially mitigated with the incorporation of PDFs.

Most specifically, PDFs substantially reduce adverse impacts for erosion and sedimentation. For the CC Alternative, at the Cañada Chiquita and Segunda Deshecha Cañada crossings adverse impacts for erosion and sedimentation are minimized with the PDFs. For the CC-ALPV Alternative, adverse impacts for erosion and sedimentation at the Cañada Chiquita and Segunda Deshecha Cañada crossings are minimized with the PDFs. For the A7C-ALPV Alternative, adverse impacts for erosion and sedimentation at Cañada Chiquita are minimized with the PDFs.

7.10.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO WATER QUALITY REMAINING AFTER MITIGATION

The potentially significant short term adverse impacts of the SOCTIIP build Alternatives to water quality would be mitigated to below a level of significance, based on implementation of the PDFs, SWMP and SWPPP and mitigation measures described in Section 4.9.

7.11 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES

7.11.1 THRESHOLDS OF SIGNIFICANCE RELATED TO WETLANDS AND WATERS OF THE UNITED STATES

In accordance with the requirements of CEQA, impacts to wetlands resources will individually or cumulatively be considered significant if they:

- Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act, California Department of Fish and Game or California Coastal Commission, including but not limited to marsh, coastal, etc. through direct removal, filling, hydrological interruption or other means.

7.11.2 ADVERSE IMPACTS RELATED TO WETLANDS AND WATERS OF THE UNITED STATES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.11.2.1 Short Term Impacts During Construction

There will be a variety of impacts to wetlands and Waters of the United States from implementation of any of the SOCTIIP Alternatives. This will include filling wetlands, as well as short term disturbance from construction generated erosion and water quality disturbance. However, due to Federal, State, and local requirements, the SOCTIIP Alternatives are required to implement measures to ensure that there is no net loss of wetlands and water quality is protected from degradation as a result of construction.

7.11.2.2 Long Term Impacts

Long term impacts to waters and wetlands without mitigation could include degradation of water quality associated with increased velocity of runoff or contaminants being transported into waterways. These impacts will be prevented, controlled and/or mitigated to below a level of significance, as appropriate, based on implementation of Best Management Practices (BMPs) incorporated in the Resource Management Plan (RMP).

7.11.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO WETLANDS AND WATERS OF THE UNITED STATES REMAINING AFTER MITIGATION

Because the project will implement mitigation measures to replace the functions and values of waters and wetlands impacted by the project and implement BMPs to avoid water quality degradation, the impacts are considered mitigated as shown in Table 7.11-1.

7.12 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WILDLIFE, FISHERIES AND VEGETATION

The following discussion addresses the impacts to wildlife, fisheries, and vegetation; however, as related specifically to the impacts to jurisdictional wetlands or endangered and threatened species, see sections 7.11 and 7.13 respectively.

7.12.1 THRESHOLDS OF SIGNIFICANCE RELATED TO WILDLIFE, FISHERIES AND VEGETATION

In accordance with the requirements of CEQA, impacts to wildlife, fishery, and vegetation resources will individually or cumulatively be considered significant if they:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the CDFG or USFWS.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance.

7.12.2 ADVERSE IMPACTS RELATED TO WILDLIFE, FISHERIES AND VEGETATION AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.12.2.1 Short Term Impacts During Construction

<u>Wildlife</u>

Amphibians

Construction of the SOCTIIP Alternatives would require the removal of several habitat types which are suitable for amphibians (vernal pools, seeps and wet meadows/marsh; riparian; and woodland communities/lakes; reservoirs, and basins/watercourses) as shown in Tables 4.11-4 and 4.11-5. These communities provide important breeding habitat for many species of

amphibians, including several which are considered sensitive. Some of the prominent drainages crossed by these Alternatives, such as San Juan, San Mateo, and San Onofre creeks, provide particularly valuable habitat for breeding amphibians. Consequently, all sensitive amphibian species that occur or have a moderate potential to occur, such as western spadefoot, would suffer adverse impacts from the project alternatives. However, due to their current status and relative abundance elsewhere in the subregion, the loss of these amphibian species would be less than significant.

Reptiles

Construction of the SOCTIIP Alternatives would remove several suitable habitat types for reptiles (i.e., all of those mapped with the exception of urban/disturbed ruderal and agriculture) as shown in Tables 4.11-4 and 4.11-5 that resident reptile species are reliant on for food, cover, and water. However, among the reptile species known or with a potential to occur in the survey area, due to their current status and relative abundance elsewhere in the subregion, the loss of these reptiles would be less than significant.

Birds

The loss of woodland communities and riparian forest/woodland communities as a result of construction of any of the Alternatives represents a loss of available nesting habitat for most of the common raptor species in the region. These habitat types are rapidly declining in southern California. In addition, the construction of the SOCTIIP Alternatives would result in the loss of grassland and scrub communities, which represents a loss of available foraging habitat for raptor species. Construction would also require the removal of several plant communities, such as CSS, riparian communities, woodland communities, and grassland. Virtually all plant communities may provide some habitat for one or more resident and migratory birds. However, by implementing the mitigation measures, all impacts can be reduced to below a level of significance.

Mammals

Several non-listed mammals have been identified within the study area. These species would be impacted during construction and the loss of habitat associated with construction of the SOCTIIP Alternatives. However, due to the abundance of the species within the study area and the implementation of the mitigation measures, impacts are considered less than significant.

Fisheries

The SOCTIIP Alternatives cross and/or parallel a number of drainages that provide habitat for a variety of fish, including several sensitive species. Drainages/water features crossed (or closely approached) by these Alternatives include, Cañada Gobernadora, San Juan Creek, Cristianitos Creek, San Mateo Creek, San Onofre Creek, and San Mateo Lagoon. Short term impacts to species inhabiting these areas could arise during construction. However, through the implementation of the mitigation measures it is anticipated that impacts to sensitive fisheries would be less than significant.

Vegetation

Sensitive Plant Communities

Impacts to upland communities such as Venturan-Diegan transitional coastal sage scrub, sage scrub-grassland ecotones, sage scrub-chaparral ecotones, native grassland, floodplain sage scrub and other scrub are classified as sensitive vegetation communities because of their limited distribution. Impacts to these communities would be mitigated primarily through the acquisition and preservation of such communities. To partially mitigate these impacts, the TCA has identified additional habitat preservation and restoration activities in the Upper Chiquita Canyon Conservation Area. The Upper Chiquita Canyon Conservation Area consists of approximately 478.7 hectares (1,182 acres) created by the TCA to mitigate biological impacts resulting from construction of the FTC-N. Of these 478.7 hectares (1,182 acres), 327 credits have been set-aside as a mitigation bank for future project impacts. These opportunities for preservation and restoration activities would also serve to partially mitigate impacts on sensitive plants for the SOCTIIP Alternatives. Regional open space planning efforts in the area, including the southern subregion of the NCCP, have not been finalized, so mitigation banking opportunities cannot currently be clearly defined at this time. However, a net loss of these rare communities that provide habitats for a unique assemblage of plants and wildlife would occur as a result of implementation of the project Alternatives. Therefore, impacts to these upland communities would be considered significant and adverse even after mitigation.

Sensitive Plant Species

Direct impacts to Catalina mariposa lily, prostrate spineflower, beaked spikerush, hedge-leaved horkelia, California juniper, small-flowered microseris, and salt spring checkerbloom would be considered adverse, but less than significant because these species are still widespread in California, the species are still widespread in Orange County, or impacts would be to a relatively small number of plants.

Direct impacts to Coulter's saltbush, intermediate mariposa lily, southern tarplant, many-stemmed dudleya, and Palmer's grapplinghook would be considered significant and adverse because these species are not widespread in California, the species distribution in Orange County are not well documented, and the plants within the impact area represent a substantial portion of the known regional population, the subject populations are unique because they occur on the edge of a known species' range (e.g., populations in the impact area occur at the southernmost extent of the range where *Calochortus weedii* var. *intermedius* intergrades with *C. w.* var. *weedii*), a large number of plants would be impacted, many historical occurrences in Orange County have recently been extirpated (southern tarplant and Palmer's grapplinghook), and/or many additional historical occurrences have been extirpated throughout the region (southern tarplant and Palmer's grapplinghook). Although mitigation for impacts to these species is provided through seed collection, the translocation of plants to suitable protected restoration sites and the monitoring of such translocated populations, the successful performance of these translocated plants is not guaranteed and very little is currently known about the ability to successfully transplant such species. Success will be partly dependent on the adequate selection

of a restoration site with similar microhabitat characteristics to the donor site. Therefore, impacts to the above plant species would be considered significant and adverse even after mitigation as shown in Table 7.11-1.

7.12.2.2 Long Term Impacts

Wildlife

Amphibians

Indirect degradation of habitats through edge effects, and other indirect impacts (e.g., lighting, road kill, and disturbance), is likely to displace additional individuals/species and contribute to the overall local population decline. However, among the non-listed amphibian species known or with a potential to occur in the survey area, due to their current status and relative abundance elsewhere in the subregion, the loss of these amphibians would be less than significant. Habitat fragmentation and wildlife corridor impacts were generally considered significant after mitigation as shown in Table 7.11-1.

Reptiles

Indirect degradation of habitats through edge effects, and other indirect impacts (e.g., lighting, road kill, and disturbance), is likely to displace additional individuals/species and contribute to the overall local population decline. However, among the reptile species known or with a potential to occur in the survey area, due to their current status and relative abundance elsewhere in the subregion, the loss of these reptiles would not be significant. Habitat fragmentation and wildlife corridor impacts were generally considered significant after mitigation as shown in Table 7.11-1.

Birds

Long term impacts to avian species would result from lighting and noise created by the SOCTIIP Alternatives. However, by implementing the proper mitigation measures, all impacts can be reduced to below a level of significance. Habitat fragmentation and wildlife corridor impacts were generally considered significant after mitigation as shown in Table 7.11-1.

Mammals

Long term impacts to mammal species would result from fragmentation of habitat and disruption of wildlife corridors. Habitat fragmentation and wildlife corridor impacts were generally considered significant after mitigation as shown in Table 7.11-1.

Fisheries

Long term impacts to any of the fish species which are known to occupy these drainages may occur as a result of impacts to water quality resulting from erosion and siltation; changes in water chemistry from roadway storm runoff and temporary construction; changes in stream flow or

other hydrological dynamics resulting from grading/bridge or culvert construction; or from any similar or related impact to any other topological feature that is associated with the watershed or physical continuity of the affected drainages. However, because these creeks would be spanned with bridges and, assuming that other mitigation/minimization measures concerning erosion and water quality are adhered to, it is anticipated that impacts to sensitive fish species would be less than significant following mitigation.

Vegetation

Long term impacts to vegetation could result from the introduction of invasive species. However, with the implementation of the mitigation measures, these impacts will be mitigated to below a level of significance.

7.12.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO WILDLIFE, FISHERIES AND VEGETATION REMAINING AFTER MITIGATION

Impacts to non-listed amphibians, non-listed reptiles, non-listed mammals, chaparral communities, annual grassland, ruderal grassland, agriculture, Catalina mariposa lily, prostrate spineflower, beaked spikerush, hedge-leaved horkelia, California Juniper, small-flowered microseris, and the salt spring checkerbloom will be less than significant. Impacts to non-listed avian species and fish species will be reduced to below a level of significance after mitigation.

To partially mitigate these impacts to Venturan-Diegan transitional coastal sage scrub, sage scrub-grassland ecotones, sage scrub-chaparral ecotones and native grassland, the TCA has identified additional habitat preservation and restoration activities in the Upper Chiquita Canyon Conservation Area. The Upper Chiquita Canyon Conservation Area consists of approximately 478.7 hectares (1,182 acres) created by the TCA to mitigate biological impacts resulting from construction of the FTC-N. Of these 478.7 hectares (1,182 acres), 327 credits have been set-aside as a mitigation bank for future project impacts. The Conservation Area was originally under substantial threat for development and the resources within the Area have been conserved, but otherwise would have been lost or substantially degraded. In addition, the Upper Chiquita Canyon Conservation Area provides opportunities for preservation activities consisting of additional habitat for oak woodland and sensitive plant species. There are also opportunities for restoration activities on site that would include additional acres of oak woodland, non-wetland drainages, coastal sage scrub, coastal sage scrub/native perennial grassland ecotone and native perennial grassland habitats. These opportunities for preservation and restoration activities would also serve to partially mitigate impacts on sensitive plants for the SOCTIIP Alternatives.

A net loss of these rare communities that provide habitats for a unique assemblage of plants and wildlife would occur as a result of implementation of all of the build alternatives. Based on the biological diversity, scarcity, location and importance of the sensitive plant communities and the amount of community impacted, these impacts are substantial even after mitigation because the impacts for the build Alternatives would result in a net loss. Therefore, impacts to these upland communities under these Alternatives would be considered significant and adverse after mitigation under CEQA.

Coulter's saltbush, intermediate mariposa lily, southern tarplant, many-stemmed dudleya, and Palmer's grapplinghook would be considered significant and adverse even after mitigation. Habitat fragmentation/wildlife corridor impacts are significant after mitigation.

7.13 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO THREATENED AND ENDANGERED SPECIES

7.13.1 THRESHOLDS OF SIGNIFICANCE RELATED TO THREATENED AND ENDANGERED SPECIES

In accordance with the requirements of CEQA, impacts to threatened and endangered species will individually or cumulatively be considered significant if they:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies or regulations or by the California Department of Fish and Game (CDFG) or the United States Fish and Wildlife Service (USFWS).

- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP) or other approved local, regional or state habitat conservation plan.

7.13.2 ADVERSE IMPACTS RELATED TO THREATENED AND ENDANGERED SPECIES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.13.2.1 Short Term Impacts During Construction

Short term impacts are identified, for the following threatened and endangered species, as the direct loss of individuals and potential habitat.

Thread-Leaved Brodiaea

Direct impacts to thread-leaved brodiaea, would be considered significant and adverse because (1) the species is not widespread in California, (2) the species distribution in Orange County is not well documented, and the plants within the impact area represent a substantial portion of the regional population, and (3) a large number of plants would be impacted. Although mitigation for impacts to this species is provided through seed collection, the translocation of plants to suitable protected restoration sites and the monitoring of such translocated populations, the successful performance of these translocated plants is not guaranteed and very little is currently known about the ability to successfully transplant such species. Success will no doubt in part be dependent on the adequate selection of a restoration site with similar microhabitat characteristics to the donor site. Therefore, impacts to the thread-leaved brodiaea would be considered significant and adverse even after mitigation as shown in Table 7.11-1.

San Diego Fairy Shrimp

The San Diego fairy shrimp will not be directly impacted by implementation of any of the SOCTIIP Alternatives. None of the vernal pools that support fairy shrimp would be directly affected by any of the alternatives. Site design issues have been implemented to avoid any indirect impacts to this species. Therefore, there will be no significant impacts to the San Diego fairy shrimp.

Riverside Fairy Shrimp

The Riverside fairy shrimp will not be directly impacted by implementation of any of the SOCTIIP Alternatives. None of the vernal pools that support fairy shrimp would be directly affected by any of the alternatives. Site design issues have been implemented to avoid any indirect impacts to this species. Therefore, there will be no significant impacts to the Riverside fairy shrimp.

Tidewater Goby

Due to the complexity and dynamic nature of their aquatic ecosystems and its susceptibility to perturbation by a number of direct effects, any direct impacts to drainages that would result in changes to water quality/chemistry, flow patterns/velocity/water temperature, turbidity, etc. occupied by the tidewater goby (San Mateo and San Onofre Creeks and San Mateo Lagoon) by the FEC and A7C corridors would represent a significant adverse impact to this species. However, because these creeks would be spanned with bridges and, assuming that other mitigation/minimization measures concerning erosion and water quality are adhered to, it is anticipated that impacts to the tidewater goby would be less than significant following mitigation as shown in Table 7.11-1.

Southern Steelhead Trout

Due to the complexity and dynamic nature of their aquatic ecosystems and its susceptibility to perturbation by a number of direct effects, any direct impacts to drainages that would result in changes to water quality/chemistry, flow patterns/velocity/water temperature, turbidity, etc. occupied by the southern steelhead trout (San Mateo and San Onofre Creeks and San Mateo Lagoon) by the FEC and A7C corridors would represent a significant adverse impact to this species. However, because these creeks would be spanned with bridges and, assuming that other mitigation/minimization measures concerning erosion and water quality are adhered to, it is anticipated that impacts to the southern steelhead trout would be less than significant following mitigation as shown in Table 7.11-1.

Arroyo Toad

Direct impacts to occupied drainages (San Juan, San Mateo, San Onofre, and Cristianitos creeks) that are known or likely to support arroyo toad would represent a significant adverse impact to the species. In addition, impacts to upland habitats adjacent or proximal to known locations of arroyo toad could also represent an unquantifiable significant adverse direct impact, as

individuals of the species may be present under the soil surface in nearby upland areas. Furthermore, impacts to upland areas that do not provide burrowing habitat may still represent a significant adverse impact if these displace a substantial amount of habitat that may otherwise be used for foraging and/or upland dispersal movements as shown in Table 7.11-1.

Considering the difficulty in ascertaining the true distribution of the species and where an individual may occur relative to the project footprint, any SOCTIIP build Alternative that crosses, or closely approaches an occupied drainage is assumed to result in significant adverse impacts to the arroyo toad. However, for most of these alternatives, the creek crossings would be constructed in a relatively perpendicular manner, and by implementing the mitigation measures provided, this impact would be reduced to a level below significant. However, the FEC and A7C corridors would be aligned closely to, and run parallel with, Cristianitos and San Mateo creeks. It is anticipated that for these Alternatives, the long-term direct impacts associated with the alignments would have significant and adverse effects on the species even after mitigation.

California Gnatcatcher

The direct loss of individuals and large impacts to occupied coastal sage scrub resulting from the build Alternatives would displace a large area of potential nesting and foraging habitat and represent a significant adverse impact to the California gnatcatcher even after mitigation as shown in Table 7.11-1.

Least Bell's Vireo

A no-net loss policy for mitigating wetlands will provide compensation for the loss of habitat that supports the least Bell's vireo. This would effectively mitigate all impacts to the least Bell's Vireo. Other species specific mitigation measures are incorporated to provide protection during construction. Thus, no significant short term impacts would occur.

Peregrine Falcon

The peregrine falcon was observed in the disturbance limits of the CC and CC-ALPV Alternatives. Construction impacts to the peregrine falcon would result from noise, lighting, and other edge effects, including disruption of the prey base. However, because this species is highly mobile and is not known to nest in the area, the project would not result in mortality or substantial displacement. Therefore, impacts would be less than significant.

Pacific Pocket Mouse

The Pacific pocket mouse, is extremely restricted in its current distribution and is perhaps the rarest species that is addressed in the survey area. All project Alternatives have been designed to avoid any impacts to the PPM. Therefore, there are no significant short term impacts to PPM.

7.13.2.2 Long Term Impacts

Long term impacts are identified for the following threatened and endangered species as the effects resulting from noise, night lighting, introduction of invasive species, erosion and water quality, and edge effects.

Thread-Leaved Brodiaea

Long term impacts to thread leaved brodiaea could result from the introduction of invasive species. However, with the implementation of the mitigation measures, these impacts will be mitigated to below a level of significance.

San Diego Fairy Shrimp

Indirect impacts associated with erosion or water quality will be mitigated through erosion control measures during construction and runoff control measures (BMPs) of storm water. Therefore, there will be no significant impacts to the San Diego fairy shrimp.

Riverside Fairy Shrimp

Indirect impacts associated with erosion or water quality will be mitigated through erosion control measures during construction and runoff control measures (BMPs) of storm water. Therefore, there will be no significant impacts to the Riverside fairy shrimp.

Tidewater Goby

Indirect impacts associated with erosion or water quality will be mitigated through erosion control measures during construction and runoff control measures (BMPs) of storm water. Therefore, there will be no significant impacts to the tidewater goby.

Southern Steelhead Trout

Indirect impacts associated with erosion or water quality will be mitigated through erosion control measures during construction and runoff control measures (BMPs) of storm water. Therefore, there will be no significant impacts to the southern steelhead trout.

California Gnatcatcher

Long term impacts to California gnatcatcher would result from lighting and noise created by the SOCTIIP Alternatives. However, by implementing the mitigation measures, all impacts can be reduced to below a level of significance

Arroyo Toad

Indirect impacts to occupied drainages (San Juan, San Mateo, San Onofre, and Cristianitos creeks) that are known or likely to support arroyo toad would represent a significant adverse

impact to the species. It is anticipated that for these Alternatives, the long-term direct impacts associated with the alignments would have significant and adverse effects on the species even after mitigation.

Least Bell's Vireo

Long term impacts to least Bell's vireo would result from lighting and noise created by the FEC-M, FEC-W, CC, CC-ALPV, A7C-FEC-M and I-5 Alternatives. However, by implementing the mitigation measures, all impacts can be reduced to below a level of significance.

Peregrine Falcon

Long-term impacts to the peregrine falcon would be limited to disruption of prey species. However, because the peregrine falcon is not tied to any particular prey species, and can utilize a variety of habitats, long-term impacts would be less than significant.

Pacific Pocket Mouse

The Pacific pocket mouse, is extremely restricted in its current distribution and is perhaps the rarest species that is addressed in the survey area. All project Alternatives have been designed to avoid any impacts to the PPM. Therefore, there are no significant long term impacts to PPM.

7.13.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO THREATENED AND ENDANGERED SPECIES REMAINING AFTER MITIGATION

Short and long term impacts to the San Diego fairy shrimp, Riverside fairy shrimp, tidewater goby, southern steelhead trout, least Bell's vireo and pacific pocket mouse will be reduced to below a level of significance through the mitigation measures. Impacts to the thread leaved brodiaea, Arroyo toad and California gnatcatcher would be considered significant and adverse even after mitigation.

7.14 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WILD AND SCENIC RIVERS

7.14.1 THRESHOLDS OF SIGNIFICANCE RELATED TO WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.) requires that certain selected rivers of the Nation, with their immediate environments which possess remarkable scenic, recreational, geological, fish and wildlife, historic, cultural or other similar values, be preserved in free flowing condition and that they and their immediate environments be protected.

7.14.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO WILD AND SCENIC RIVERS

The SOCTIIP study area does not contain wild, scenic or recreational rivers as addressed in the Wild and Scenic Rivers Act or listed in the National Inventory of Wild and Scenic Rivers.

Therefore, the construction and operation of any of the SOCTIIP build Alternatives will not result in adverse impacts on wild and scenic rivers. Similarly, the No Action Alternatives will not result in adverse impacts on wild and scenic rivers.

7.15 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO COASTAL BARRIERS

7.15.1 THRESHOLDS OF SIGNIFICANCE RELATED TO COASTAL BARRIERS

The Coastal Barrier Resource Act (CBRA) was enacted by Congress on October 18, 1982 (U.S.C. Section 3501 et. seq.). The Act was passed in an effort "...to minimize the loss of human life, wasteful expenditure of Federal revenues, and the damage to fish, wildlife and other natural resources associated with coastal barriers along the Atlantic and Gulf coasts." (U.S.C. Section 3501(b)). The Coastal Barrier Improvement Act of 1990 (CBIA, P.L. 101-591; 104 Stat. 2931) added new areas along the Great Lakes, Puerto Rico, the Florida Keys, the Virgin Islands, and secondary barriers within large embayments to the System protected by the CBRA.

7.15.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO COASTAL BARRIERS

The SOCTIIP study area does not contain coastal barriers as addressed in the CBRA or CBIA. Therefore, the construction and operation of any of the SOCTIIP build Alternatives will not result in adverse impacts on coastal barriers. Similarly, the No Action Alternatives will not result in adverse impacts on coastal barriers.

7.16 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO THE COASTAL ZONE

7.16.1 THRESHOLDS OF SIGNIFICANCE RELATED TO THE COASTAL ZONE

If the Alternatives violate the stated goals of the California Coastal Commission (CCC), impacts to the coastal zone would be considered significant and adverse. The goals of the CCC were provided earlier in Section 4.15 (Affected Environment, Impacts and Mitigation Measures Related to the Coastal Zone).

7.16.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO THE COASTAL ZONE

The FEC-W, FEC-M, CC, A7C-FEC-M Alternatives, and the I-5 Alternative encroach on the coastal zone and may require a Coastal Development Permit (CDP) (California) and a consistency finding with the CCMP (Federal).

The AIO Alternative and the No Action Alternatives are not in the Coastal Zone and, therefore, have no impacts related to the Coastal Zone.

Once a build Alternative is selected, a CDP application will be submitted to the CCC. The CDP will address Coastal Zone concerns including biological, cultural and paleontological resources and visual impacts based on impacts and mitigation identified in this EIS/SEIR for the selected Alternative. Refer to Sections 7.11, 7.12, 7.13, 7.17, 7.19 and 7.24 for adverse impacts and levels of significance before and after mitigation for biological, cultural and Paleontological resources and visual resources.

7.16.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO THE COASTAL ZONE

Refer to Sections 7.11, 7.12, 7.13, 7.17, 7.19 and 7.24 for the Alternatives that have significant adverse impacts under CEQA to biological, paleontological, archaeological and visual resources after mitigation.

7.17 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO HISTORIC AND ARCHAEOLOGICAL RESOURCES

7.17.1 THRESHOLDS OF SIGNIFICANCE RELATED TO HISTORIC AND ARCHAEOLOGICAL RESOURCES

A SOCTIIP Alternative would result in significant adverse impacts related to archaeological and historic resources if it would:

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of CEQA.
- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of CEQA.
- Disturb any human remains, including those interred outside of formal cemeteries.

7.17.2 ADVERSE IMPACTS RELATED TO HISTORIC AND ARCHAEOLOGICAL RESOURCES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.17.2.1 Short Term Impacts During Construction

Impacts on archaeological and historic resources during construction are related to the damage or destruction of these resources that could occur during demolition, earthmoving and other construction activities. These impacts to archaeological and historic resources would be adverse.

7.17.2.2 Long Term Impacts

The long term impacts related to archeological and historic resources are generally indirect in nature. Long term potential impacts associated with increased noise levels, reduction in air

quality and increases in traffic volume in the vicinity of historic resources could potentially affect the public access and enjoyment of these resources. In the case of archeological resources, public access could potentially be made available to previously inaccessible resources, thereby increasing human presence in those areas. Increased human presence creates opportunities for increased disturbance of archeological resources including the potential for scavenging and/or damage by amateur collectors and construction personnel.

7.17.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO HISTORIC AND ARCHAEOLOGICAL RESOURCES REMAINING AFTER MITIGATION

As described previously in Section 4.16, a phased approach was used for identification and evaluation of archaeological and historic resources because of the number of build Alternatives that are proposed from which a particular Alternative may be selected for implementation. This phased approach avoids unnecessary research and analysis of resources along alignments that are not ultimately chosen for implementation. The first phase (Phase I) consisted of background research and field survey of all accessible land in the study area for each proposed Alternative, so that the various Alternatives can be ranked based on the level of resources that could be potentially impacted.

Phase II would include the evaluation of the NRHP eligibility of all identified cultural resources in the area of potential effect that would be developed for the selected Alternative. Phase II would be conducted in consultation with FHWA, Caltrans, SHPO and as appropriate, MCB Camp Pendleton. Studies in Phase II would include evaluations, detailed architectural inventory and other appropriate reports as warranted.

Because Phase II has yet to be conducted following selection of a preferred Alternative, each archaeological and historic resource identified in Phase I, is considered to be potentially significantly impacted by implementation of the associated build Alternative(s). It is not know at this time if these impacts can be mitigated to below a level of significance. Therefore, as shown on Table 7.17-1 and 7.17-2 for archaeological resources and table 7.17-3 for historic resources, the following SOCTIIP Alternatives are assumed to result in potentially significant adverse impacts related to archaeological and historic resources:

FEC-W Alternative.
FEC-M Alternative.
CC Alternative.
CC-ALPV Alternative.
A7C-ALPV Alternative.
A7C-FEC-M Alternative.
AIO Alternative (Potential significant adverse impacts related to archaeological resources only. No potentially significant adverse impacts related to historic resources.)
I-5 Alternative.

7.18 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTES

7.18.1 THRESHOLDS OF SIGNIFICANCE RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTES

An Alternative would result in a significant impact related to hazardous materials if it:

- Creates a significant hazard to the public or the environment through the routine use, transport or disposal of hazardous materials.
- Creates a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.
- Is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and which would create a significant hazard to the public or the environment.

7.18.2 ADVERSE IMPACTS RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.18.2.1 Short Term Impacts During Construction

The SOCTIIP build Alternatives could potentially result in adverse impacts during construction related to military sites, past pesticide and herbicide use on agricultural land, USTs, LUST sites, auto services, dry cleaners, existing utilities, wastewater treatment plants, electrical substations, petroleum pipelines, asbestos in existing structures, aerially deposited lead, undocumented abandon oil wells or test borings, release of hazardous materials due to construction activities and Prima Deshecha Landfill. All of the SOCTIIP build Alternatives will result in short term impacts related to hazardous wastes and hazardous materials. Table 7.18-1 summarizes the potential short term, construction adverse impacts of the SOCTIIP build Alternatives related to hazards and hazardous materials.

Because the study area is highly variable regarding documentation of hazards and hazardous materials, and previous uses, the presence of hazards and hazardous materials cannot be positively established without additional Alternative-specific research and testing. Therefore, in the absence of this information, short term construction related impacts of the SOCTIIP build Alternatives related to hazards and hazardous materials could be significant under CEQA because they have the potential to result in a hazard to the public, construction workers and/or the environment. These impacts would be mitigated to below a level of significance based on

the mitigation measures provided in Section 4.17 (Affected Environment, Impacts and Mitigation Measures Related to Hazardous Materials and Wastes) and on compliance with existing federal, state and local regulations regarding hazardous materials and wastes.

The No Action Alternatives will not result in the construction of any SOCTIIP related transportation improvements in the SOCTIIP study area. Therefore, the No Action Alternatives will not result in construction related hazardous materials impacts.

7.18.2.2 Long Term Impacts

The SOCTIIP corridor Alternatives could potentially result in an increased risk associated with accidental release of hazardous materials and wastes in areas not currently subject to this risk.

All the SOCTIIP build Alternatives are expected to result in the use of these transportation facilities for the transport of hazardous materials and wastes.

The operations related hazardous materials and wastes impacts of the SOCTIIP build Alternatives could be significant under CEQA because they have the potential to result in an accidental release of hazardous materials or wastes on the transportation facilities and causing a hazard to the public and/or the environment. This potential for accidental release already exists on the transportation system as a result of the existing transport of hazardous materials and wastes in the study area. Under the SOCTIIP build Alternatives, some of these trips would be moved to alternative travel corridors. These potential impacts would be mitigated to below a level of significance based on compliance with existing federal, state and local regulations related to the transport of hazardous materials and wastes.

The No Action Alternatives will not result in SOCTIIP improvements to the Master Plan of Arterial Highways (MPAH) and I-5 components of the transportation system. The arterial roads and I-5 in the SOCTIIP study area under the No Action Alternatives are expected to continue to be used for the transport of hazardous wastes and materials, similar to existing conditions.

7.18.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTES

The potentially significant short term adverse construction impacts of the SOCTIIP build Alternatives would be substantially mitigated, to below a level of significance, based on implementation of the mitigation measures described in Table 7.18-1.

The potentially significant long term adverse impacts of the SOCTIIP build Alternatives related to accidental releases of hazardous materials or wastes would be substantially mitigated, to below a level of significance, based on implementation of existing federal, state and local regulations regarding response and remediation for hazardous materials or wastes spills.

7.19 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

7.19.1 THRESHOLDS OF SIGNIFICANCE RELATED TO VISUAL RESOURCES

7.19.1.1 Threshold for Visual Resources

A SOCTIIP Alternative would result in a significant impact under CEQA related to visual resources if it has an adverse impact on visual quality, view quality or community character.

As defined in Section 4.18 (Affected Environment, Impacts and Mitigation Measures Related to Visual Resources), project impacts related to visual quality were based on numeric calculations to assist in determining the magnitude of the visual change between the existing conditions and the conditions under the project Alternatives. A decrease in visual quality under the project Alternatives of one or more numeric point from the existing condition rating is considered a substantial adverse impact. This one or more point decrease in visual quality represents a modification such that the typical viewer would be aware of the change and would consider the change to be substantially adverse. Visual impacts defined as substantially adverse in Section 4.18 are considered significant and adverse under CEQA.

Sensitive viewers were defined in Section 4.18 and they include residential viewers, users of wilderness parks, State parks, the Donna O'Neill Land Conservancy and motorists on designated scenic roads. Significant impacts under CEQA related to visual quality, view quality or community character are defined below:

Visual Quality. The project would have a significant visual quality impact if:

- The proposed project would highly and negatively contrast with the existing visual character as indicated by a decrease of one or more numeric points from the existing visual quality numeric rating and this change is visible to viewers with high sensitivity; or

- The project would remove dominant natural features such as rock outcrops, mature vegetation or cultural features, or at least 25 percent of the visual elements of the visual Assessment Unit (AU) that contribute to the uniqueness and character of the visual setting in the sub-region.

View Quality. The project would have a significant impact on view quality if:

- A regionally outstanding view has been identified from this viewing location and the project will highly and negatively contrast with the high quality view scene and this contrast would be visible to viewers with high sensitivity; or

- Project elements will result in a major view blockage and this contrast would be visible to viewers with high sensitivity.

Community Character. The project will have a significant impact on community character if:

- The project will remove existing community elements and landmarks that have been identified by the community as important; or

- The project would prevent the attainment of or conflict with adopted community aesthetic and character goals and policies contained in relevant General Plans and Community Plans.

7.19.1.2 Threshold for Light and Glare

- An Alternative would result in a significant impact related to light and glare if it would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

7.19.2 ADVERSE IMPACTS RELATED TO VISUAL RESOURCES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

Table 7.19-1 summarizes the adverse impacts of the SOCTIIP Alternatives related to visual resources. Table 7.19-1 identifies the short and long term impacts anticipated under each Alternative, the mitigation measures proposed to reduce or avoid those adverse impacts and the CEQA level of significance of those impacts after mitigation. Visual impacts identified as substantially adverse in Section 4.18 are significant under CEQA and visual impacts identified as adverse but less than substantial are less than significant under CEQA. As described previously in Section 4.18, a change in visual quality under the project Alternatives of one or more numeric point from the existing condition rating is considered a substantial impact.

7.19.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO VISUAL RESOURCES REMAINING AFTER MITIGATION

As shown in Table 7.19-1, the following Alternatives would result in significant unavoidable adverse impacts related to visual resources:

FEC-M Alternative.
FEC-W Alternative.
CC Alternative.
CC-ALPV Alternative.
A7C-FEC-M Alternative.
A7C-ALPV Alternative.
AIO Alternative.
I-5 Alternative.

7.20 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO ENERGY

7.20.1 THRESHOLDS OF SIGNIFICANCE RELATED TO ENERGY

A SOCTIIP Alternative would result in a significant impact related to energy under CEQA if it:

- Requires large amounts of energy during construction or operation.
- Affects the local and regional energy supply or requirements for additional capacity.
- Affects peak or base energy demands.
- Does not comply with existing energy standards.
- Makes inefficient use of transportation energy in comparison to other transportation alternatives.

7.20.2 ADVERSE IMPACTS RELATED TO ENERGY AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.20.2.1 Short Term Impacts During Construction

The use of energy for the construction of the SOCTIIP build Alternatives would be a short term adverse impact on energy resources. However, it would represent only a minor percent of the total energy consumed in the region during the construction period and, therefore, is not anticipated to result in adverse impacts on the overall supply of and demand for energy during the construction of the SOCTIIP build Alternatives.

7.20.2.2 Long Term Impacts

The FEC-W, FEC-M, CC and I-5 Alternatives would not result in a significant change in energy consumed on an annual basis compared to the No Action-RMV Plan.

The AIO Alternative would have a beneficial effect on energy consumed on an annual basis compared to the No Action-RMV Plan.

The A7C-FEC-M and I-5 Alternatives would not result in a significant change in energy consumed on an annual basis compared to the No Action-OCP-2000 Plan.

The FEC-W, FEC-M, CC and AIO Alternatives would have a beneficial effect on energy consumed on an annual basis compared to the No Action-OCP-2000 Plan.

7.20.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO ENERGY REMAINING AFTER MITIGATION

No mitigation measures related to energy are proposed because the change in energy consumption under the build Alternatives compared to the No Action Alternatives is substantially less than one percent on an annual basis and, therefore, construction and operation for the SOCTIIP build Alternatives would not result in adverse impacts on energy consumption.

7.21 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO EARTH RESOURCES

7.21.1 THRESHOLDS OF SIGNIFICANCE RELATED TO EARTH RESOURCES

A SOCTIIP Alternative would result in a significant adverse impact related to geotechnical, geology and soils if it:

- Exposes people or structures to the risk of loss, injury or death involving:
  - Surface rupture of a known earthquake fault, as delineated on the most recent Earthquake Fault Zones map issued by the State Geologist for the area, or confirmed evidence of newly identified earthquake fault. Refer to the California Division of Mines and Geology (CDMG) Special Publication 42.
  - Seismic shaking hazards that exceed those inherent to similar contemporary facilities.
  - Seismic-related ground failure, including liquefaction.
  - Landslides.
  - Seismically induced flooding.
- Directly or indirectly destroys a unique geologic feature.
- Results in loss of mineral resources that are of value to the region or the residents of the State of California, or which are locally important for recovery.
- Results in permanent adverse effects to groundwater resources.
- Results in adverse effects related to the disposal of excavated material, sewage or wastewater.
- Exposes people or structures to an increased hazard of landslide or mudslide.
- Exposes structures to potential damage from expansive or collapsible soil.
- Results in an increase in the potential for soil erosion.
- Exposes structures to a potential for distress due to foundation settlement or subsidence.

7.21.2 ADVERSE IMPACTS RELATED TO EARTH RESOURCES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

None of the SOCTIIP Alternatives presents significant adverse impacts relative to earthquake damage, destruction of a unique geologic feature, exposure of people or structures to an increased hazard of landslide or mudslide, exposure of structures to potential damage from expansive or collapsible soil, increased soil erosion above natural conditions or exposure of structures to a potential for distress due to foundation settlement or subsidence, as summarized in Table 7.21-1.

7.21.2.1 Short Term Impacts During Construction

As shown in Table 7.21-1, all of the SOCTIIP build Alternatives will result in temporary lowering of groundwater levels. All of the SOCTIIP build Alternatives will result in increased disposal of excavated material. These impacts are considered to be less than significant.

7.21.2.2 Long Term Impacts

As shown in Table 7.21-21, the SOCTIIP corridor Alternatives that cross San Juan Creek will pose limitations on future mining of sand and gravel deposits in San Juan Creek. However, because of the low likelihood that future mining would be permitted in San Juan Creek, these impacts are considered less than significant.

The A7C-ALPV Alternative results in permanent impacts to a mapped groundwater spring located 0.75 km (0.5 mi) south of Ortega Highway and the relocation of a well in the SOCTIIP study area. These impacts are considered significant and adverse.

7.21.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO EARTH RESOURCES

As shown in Table 7.21-1, the following Alternatives will have significant adverse impacts after mitigation related to permanent impacts to a mapped groundwater spring located 0.75 km (0.5 mi) south of Ortega Highway and the relocation of a well in the SOCTIIP study area.

A7C-ALPV Alternative.

7.22 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO MILITARY USES

7.22.1 THRESHOLDS OF SIGNIFICANCE RELATED TO MILITARY USES

An Alternative would be considered to result in an adverse impact related to military uses if it:

- Physically encroaches onto Camp Pendleton.

- Results in impacts which reduce the ability of Camp Pendleton to meet its Military Training Mission.

7.22.2 ADVERSE IMPACTS RELATED TO MILITARY USES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

Table 7.22-1 summarizes the potential adverse impacts of the SOCTIIP Alternatives related to the Military Mission at MCB Camp Pendleton. Mitigation is identified for those potentially significant adverse impacts. Table 7.22-1 also identifies the level of significance of each impact under CEQA before and after implementation of the identified mitigation measures.

7.22.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO MILITARY USES REMAINING AFTER MITIGATION

As shown in Table 7.22-1, the following SOCTIIP Alternatives would result in significant unavoidable adverse impacts related to the Military Mission as Camp Pendleton:

FEC-W Alternative.
FEC-M Alternative.
A7C-FEC-M Alternative.

7.23 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO MINERAL RESOURCES

7.23.1 THRESHOLDS OF SIGNIFICANCE RELATED TO MINERAL RESOURCES

A SOCTIIP Alternative was considered to result in a significant adverse impact related to mineral resources if it results in loss of mineral resources that are of value to the region or the residents of the State of California or which are locally important for recovery.

7.23.2 ADVERSE IMPACTS RELATED TO MINERAL RESOURCES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.23.2.1 Short Term Impacts During Construction

There are no short term impacts during construction of any SOCTIIP Alternatives related to mineral resources.

7.23.2.2 Long Term Impacts

The SOCTIIP corridor Alternatives (FEC-W, FEC-M, CC, CC-ALPV, A7C-ALPV and A7C-FEC-M Alternatives) all cross San Juan Creek, and may pose slight limitations on future mining of sand and gravel deposits in the project vicinity. Considering that the affected areas are small relative to the area of the Creek and the low likelihood that future mining could be permitted in San Juan Creek, this is not considered a significant adverse impact.

7.23.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO MINERAL RESOURCES REMAINING AFTER MITIGATION

The potentially significant long term adverse impacts of the SOCTIIP build Alternatives would be substantially mitigated, to below a level of significance, based on implementation of the mitigation measures described in Section 4.22.

7.24 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO PALEONTOLOGICAL RESOURCES

7.24.1 THRESHOLDS OF SIGNIFICANCE RELATED TO PALEONTOLOGICAL RESOURCES

A SOCTIIP Alternative would result in a significant impact related to paleontological resources under CEQA if it:

- Directly or indirectly results in the destruction of a significant paleontological resource.

Impacts of the SOCTIIP Alternatives will also be considered significant if the paleontological resources impacted themselves are considered significant, as defined earlier in Section 4.23 (Affected Environment, Impacts and Mitigation Measures Related to Paleontological Resources).

7.24.2 ADVERSE IMPACTS RELATED TO PALEONTOLOGICAL RESOURCES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

7.24.2.1 Short Term Impacts During Construction

Short term impacts to paleontological resources would be due directly to construction of the SOCTIIP build Alternatives. Short term adverse effects are primarily the destruction of paleontologic resources and the loss of information associated with paleontologic resources. There are no short term beneficial effects unless mitigation is implemented. With mitigation, the short term beneficial effect is the potential salvage of paleontological resources. The short term effects of the SOCTIIP build Alternatives on paleontological resources are summarized in Table 7.24-1.

7.24.2.2 Long Term Impacts

Long term impacts to paleontological resources are post-construction and are primarily the result of increased human presence. There are no beneficial long term effects unless mitigation is implemented. With mitigation, the long term beneficial effect is the potential for increased knowledge available to scientists, educators and the general public. Long term effects of the SOCTIIP build Alternatives on paleontological resources are summarized in Table 7.24-1.

The No Action Alternatives will not result in adverse impacts to paleontological resources, either in the short term or long term because the No Action Alternatives will not result in the construction of the SOCTIIP build Alternatives. However, the beneficial impact of the potential

for increased knowledge made available to scientists, educators and the general public by salvage of paleontological resources during construction of the SOCTIIP Alternatives would not occur under the No Action Alternatives. Important beneficial impacts to paleontological resources do exist for the No Action Alternatives in the preservation, in its original place, of paleontological resources for future generations who might have the benefit of new technological advances in construction, fossil excavation and scientific analyses.

7.24.3 SIGNIFICANT ADVERSE IMPACTS RELATED TO PALEONTOLOGICAL RESOURCES REMAINING AFTER MITIGATION

As shown in Table 7.24-1, none of the SOCTIIP Alternatives would result in significant unavoidable adverse impacts related to paleontological resources after mitigation.

7.25 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO PUBLIC SERVICES AND UTILITIES

7.25.1 THRESHOLDS OF SIGNIFICANCE RELATED TO PUBLIC SERVICES AND UTILITIES

A SOCTIIP Alternative would result in a significant adverse impact under CEQA related to public services and utilities if it:

- Results in adverse impacts associated with alterations to existing facilities or services; and/or the need for new facilities or services when those alterations or new facilities or services could cause significant environmental impacts, related to the following public services:
  - Fire protection.
  - Police protection.
  - Emergency response and medical service.
  - Solid waste disposal services and facilities.
  - Schools.
  - Other public services facilities.
  - Electrical facilities and services.
  - Natural gas facilities and services.
  - Fuel transport and supply facilities and services.
  - Domestic and recycled water facilities and services.
  - Sanitary sewer facilities and services.
  - Communications facilities and services.

A SOCTIIP Alternative would result in a significant adverse impact related to utilities if it:

- Exceeds the wastewater treatment requirements of the applicable Regional Water Quality Control Board.

- Requires or results in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Requires or results in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Results in the need for new or expanded entitlements because insufficient water supplies are available under existing entitlements and resources.

- Results in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments.

7.25.2 ADVERSE IMPACTS RELATED TO PUBLIC SERVICES AND UTILITIES AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION

Table 7.25-1 identifies the potential short and long term adverse impacts on utilities and services anticipated under each alternative, the mitigation measures proposed to reduce or avoid those adverse impacts and the CEQA level of significance of each impact after mitigation.

7.25.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO PUBLIC SERVICES AND UTILITIES

As shown in Table 7.25-1, the following SOCTIIP Alternatives would result in significant unavoidable adverse impacts related to public services and utilities:

CC Alternative.
CC-ALPV Alternative.
A7C-ALPV Alternative.
AIO Alternative.
I-5 Alternative.

7.26 SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO RECREATION RESOURCES

7.26.1 THRESHOLDS OF SIGNIFICANCE RELATED TO RECREATION RESOURCES

7.26.1.1 Thresholds Related to the Temporary Use and/or Permanent Acquisition of Property

An Alternative would result in a potentially significant adverse impact related to the temporary use and/or permanent acquisition property if it results in the removal of recreation amenities that cannot be temporarily and/or permanently relocated elsewhere within the property or if the removal of property significantly impairs the existing and/or planned function of the facility as a recreation resource such that they cannot be used for their designed functions.

7.26.1.2 Thresholds Related to Noise

As discussed earlier in Section 4.6 (Affected Environment, Impacts and Mitigation Measure Related to Noise), certain uses have applicable outdoor noise standards and others do not. Noise standards apply to school sports fields, golf courses, city and local parks. Noise standards do not apply to open space, trails and proposed recreation resources. For regional and state parks, noise standards apply only in areas of frequent human use such as campgrounds, sports fields and areas with outdoor facilities which encourage outdoor recreation use.

The majority of construction-related noise impacts of the SOCTIIP Alternatives would occur within the allotted hours in accordance with applicable local jurisdictions' Noise Ordinances. However, pile driving activities and bridge construction activities on I-5 will likely occur outside regular construction noise hours, resulting in the potential for significant adverse short term noise impacts based on the local Noise Ordinances. Therefore, these would be significant adverse impacts that cannot be mitigated to below a level of significance.

Assuming the noise standard applies to the recreational resource, an Alternative would result in a potentially significant adverse noise impact under CEQA if it:

- Results in short term construction related noise levels at a recreation resource that exceed the applicable local jurisdiction's noise guidelines or regulations for construction noise and those noise levels would be expected to adversely affect the use of the recreation resource during construction.

- The operation of the Alternative results in long term noise levels at the recreation resources greater than 66 decibels (dBA).

7.26.1.3 Thresholds Related to Transportation

An Alternative would potentially result in a significant adverse impact on a recreation resource related to transportation if it:

- Reduces or restricts access on the public road or roads which provide direct access to the resource.

- Results in a substantial change in which traffic generated by the SOCTIIP Alternative inhibits existing users from accessing a resource due to extensive traffic delays. For this analysis, delays were considered substantial if vehicular access to the resource increased by more than 20 minutes for neighborhood parks, 40 minutes for community parks and 60 minutes for regional and state parks as a result of the SOCTIIP Alternatives.

7.26.1.4 Thresholds Related to Air Quality

An Alternative would potentially result in a significant short term adverse air quality impact on recreation resources during construction if the resource is within 45.7 meters (150 feet) of the

road centerline and there are no intervening land uses or topography between the resource and the construction area.

As discussed in Section 4.7 (Affected Environment, Impacts and Mitigation Measures Related to Air Quality), none of the build Alternatives results in an increase in the number or severity of air quality standard exceedences during operations. Therefore, none of the Alternatives are expected to result in an adverse impact on recreation resources in the long term.

7.26.1.5 Thresholds Related to Visual Impacts

An Alternative would result in potentially significant adverse visual impacts on a recreation resource if it introduces views of the project into views from resources which previously had unobstructed views of surrounding areas and those previous views were considered important and would include views of the features of the SOCTIIP Alternatives. For example, a recreational resource in an urbanized area in close proximity to a highway or road facility would not be considered to experience substantial adverse visual impacts due to construction of the SOCTIIP Alternative. Conversely, a designated nature area that includes unimpaired views of the surrounding undeveloped areas could be adversely impacted, depending on the nature and degree to which views were affected by topography, elevation and other factors.

7.26.2 ADVERSE IMPACTS AND LEVEL OF SIGNIFICANCE BEFORE AND AFTER MITIGATION RELATED TO RECREATION RESOURCES

Table 7.26-1 summarizes the potential adverse impacts of the SOCTIIP Alternatives related to the temporary use and permanent acquisition of property, air quality (short term), noise (short term and long term), traffic and visual on recreation resources in the study area. For each Alternative, the potentially affected resources, impacts on those resources, applicable mitigation measures and level of significance after mitigation are provided.

7.26.3 SIGNIFICANT ADVERSE IMPACTS REMAINING AFTER MITIGATION RELATED TO RECREATION RESOURCES

As shown in Table 7.26-1, the following SOCTIIP build Alternatives will result in significant adverse impacts on one or more existing and/or planned recreation resources which cannot be mitigated to below a level of significance:

FEC-W Alternative.
FEC-M Alternative.
CC Alternative.
CC-ALPV Alternative.
A7C-ALPV Alternative.
A7C-FEC-M Alternative.
AIO Alternative.
I-5 Alternative.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Far East Corridor-Modified Alternative		
None.	None.	Not applicable.
Far East Corridor-West Alternative		
None.	None.	Not applicable.
Central Corridor-Complete Alternative		
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Avenida Pico under Scenarios 1, 3 and 4.	No conventional intersection enhancements could be identified (traffic share = 19%).	Significant. (b)
Long range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Avd Pico under Scenarios 1, 3 and 4.	Widen to a two-lane on-ramp (traffic share = 58%).	Significant. (b)
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Avd Pico under Scenarios 1, 3 and 4.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 58%).	Significant. (b)
Central Corridor-Avenida La Pata Variation Alternative		
Long-range peak hour LOS intersection deficiency: Avd La Pata & Avd Pico under Scenarios 1 and 3.	Add second eastbound left-turn lane and convert second northbound through lane to shared second through/ second right-turn lane (traffic share = 16%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Avd La Pata & Avd Vista Hermosa under Scenarios 1 and 3.	Add third eastbound through lane and second westbound left-turn lane (traffic share = 22%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Avd Talega & Ave Vista Hermosa under Scenario 1.	Add third westbound through lane (traffic share = 37%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Avd Vista Hermosa & Avd Pico under Scenario 1.	Add westbound right-turn lane and convert third eastbound through lane to third eastbound left-turn lane (traffic share = 31%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Cm Vera Cruz & Avd Vista Hermosa under Scenario 1.	Add third eastbound and westbound through lanes and second southbound left-turn lane (traffic share = 10%).	Less than significant.
Long-range peak hour LOS intersection deficiency: I-5 northbound ramps & Avd Pico under Scenarios 1 and 3.	Add third eastbound through lane and second eastbound left-turn lane (traffic share = 17%).	Significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long-range peak hour LOS intersection deficiency: I-5 southbound ramps & Avd Pico under Scenarios 1 and 3.	Reconstruct intersection as part of ramp improvement listed below to provide separate southbound on-ramps from eastbound and westbound Avd Pico (traffic share = 21%).	Less than significant.
Long-range peak hour LOS ramp deficiency: I-5 northbound off-ramp at Avd Pico under Scenarios 1 and 3.	Add second drop lane from I-5 to the off-ramp (traffic share = 36%).	Less than significant.
Long-range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Avd Pico under Scenarios 1 and 3.	Widen to a two-lane on-ramp (traffic share = 6%).	Less than significant.
Long-range peak hour LOS ramp deficiency: I-5 southbound on-ramp at Avd Pico under Scenarios 1 and 3.	Provide separate on-ramps from eastbound and westbound Avd Pico (traffic share = 35%).	Significant.
Alignment 7 Corridor-Far East Crossover-Modified Alternative		
None.	None.	Not applicable.
Alignment 7 Corridor-Avenida La Pata Variation Alternative		
Long-range peak hour LOS intersection deficiency: Avd La Pata & Avd Pico under Scenarios 1 and 3.	Add second eastbound left-turn lane and convert second northbound through lane to shared second through/second right-turn lane (traffic share = 16%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Avd la Pata & Avd Vista Hermosa under Scenarios 1 and 3.	Add third eastbound through lane and second westbound left-turn lane (traffic share = 22%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Avd Talega & Ave Vista Hermosa under Scenario 1.	Add third westbound through lane (traffic share = 37%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Avd Vista Hermosa & Avd Pico under Scenario 1.	Add westbound right-turn lane and convert third eastbound through lane to third eastbound left-turn lane (traffic share = 31%).	Less than significant.
Long-range peak hour LOS intersection deficiency: Cm Vera Cruz & Avd Vista Hermosa under Scenario 1.	Add third eastbound and westbound through lanes and second southbound left-turn lane (traffic share = 10%).	Less than significant.
Long-range peak hour LOS intersection deficiency: I-5 northbound ramps & Avd Pico under Scenarios 1 and 3.	Add third eastbound through lane and second eastbound left-turn lane (traffic share = 17%).	Significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long-range peak hour LOS intersection deficiency: I-5 southbound ramps & Avd Pico under Scenarios 1 and 3.	Reconstruct intersection as part of ramp improvement listed below to provide separate southbound on-ramps from eastbound and westbound Avd Pico (traffic share = 21%).	Less than significant.
Long-rang peak hour LOS ramp deficiency: I-5 northbound off-ramp at Avd Pico under Scenarios 1 and 3.	Add second drop lane from I-5 to the off-ramp (traffic share = 36%).	Less than significant.
Long-range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Avd Pico under Scenarios 1 and 3.	Widen to a two-lane on-ramp (traffic share = 6%).	Less than significant.
Long-range peak hour LOS ramp deficiency: I-5 southbound on-ramp at Avd Pico under Scenarios 1 and 3.	Provide separate on-ramps from eastbound and westbound Avd Pico (traffic share = 35%).	Significant.
Arterial Improvements Only Alternative		
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Crown Valley Pkwy under Scenario 3.	Implement at-grade improvement plan: add third eastbound and northbound left-turn lanes and provide eastbound free right-turn lane (traffic share = 11%). Or implement grade separated improvement plan: signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy (traffic share = 11%).	Significant.
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Crown Valley Pkwy under Scenario 4.	Implement at-grade improvement plan: add fourth eastbound and westbound through lanes and third northbound, southbound, eastbound and westbound left-turn lanes, and provide westbound free right-turn lane (traffic share = 11%). Or implement grade separated improvement plan: signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy (traffic share = 11%).	Significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long range peak hour LOS intersection deficiency: Antonio Pkwy-La Pata Ave & Ortega Hwy under Scenario 4.	Implement at-grade improvement plan: add third eastbound and westbound through lanes and third southbound and westbound left-turn lanes, and provide northbound, southbound and westbound free right-turn lanes (traffic share = 5%). Or implement grade separated improvement plan: signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy-La Pata Ave (traffic share = 5%).	Significant.
Long range peak hour LOS intersection deficiency: Antonio Pkwy & North River Rd under Scenario 3.	Add third southbound and westbound left-turn lanes (traffic share = 12%).	Less than significant.
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Oso Pkwy under Scenarios 3 and 4.	Implement at-grade improvement plan: add fourth eastbound and westbound through lanes and third northbound, eastbound and westbound left-turn lanes, and provide northbound and westbound free right-turn lanes (traffic share = 16%). Or implement grade separated improvement plan: Signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy (traffic share = 16%).	Significant.
Long range peak hour LOS intersection deficiency: Avd Empresa & Avd De Las Banderas under Scenarios 3 and 4.	Add second eastbound left-turn lane (traffic share = 2%).	Less than significant.
Long range peak hour LOS intersection deficiency: Avd Empresa & Santa Margarita Pkwy under Scenarios 3 and 4.	Convert eastbound right-turn lane to a free right-turn lane and add northbound shared third left-turn lane/through lane (traffic share = 4%).	Less than significant.
Long range peak hour LOS intersection deficiency: Avd La Pata & Avd Pico under Scenarios 3 and 4.	Implement at-grade improvement plan: add third northbound through lane and second and third eastbound left-turn lanes, and provide westbound free right-turn lane (traffic share = 26%). Or implement grade separated improvement plan: signalized control of all intersection movements except eastbound and westbound through traffic on Avd Pico (traffic share = 26%).	Less than significant.
Long range peak hour LOS intersection deficiency: Avd La Pata & Avd Vista Hermosa under Scenarios 3 and 4.	Add fourth southbound through lane, second southbound, eastbound and westbound left-turn lanes, and westbound right-turn lane (traffic share = 16%).	Less than significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long range peak hour LOS intersection deficiency: Felipe Rd & Oso Pkwy under Scenarios 3 and 4.	Add fourth eastbound and westbound through lanes and second southbound left-turn lane, and convert second northbound through lane to shared second through/second right-turn lane (traffic share = 4%).	Less than significant.
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Avd Pico under Scenarios 3 and 4.	Add third eastbound through lane (traffic share = 8%).	Less than significant.
Long range peak hour LOS intersection deficiency: I-5 southbound ramps & Avd Pico under Scenarios 3 and 4.	Add second westbound left-turn lane (traffic share = 13%).	Less than significant.
Long range peak hour LOS intersection deficiency: Marguerite Pkwy & Jeronimo Rd under Scenario 4.	Add second northbound left-turn lane (traffic share = 6%).	Less than significant.
Long range peak hour LOS intersection deficiency: SR 241 northbound ramps & Antonio Pkwy under Scenario 3.	Convert third westbound through lane to shared third through/second right-turn lane (traffic share = 3%).	Less than significant.
Long range peak hour LOS intersection deficiency: SR 241 northbound ramps & Oso Pkwy under Scenarios 3 and 4.	Add third westbound through lane, second eastbound left-turn lane, and second eastbound right-turn lane (traffic share = 14%).	Significant.
Long range peak hour LOS intersection deficiency: SR 241 southbound ramps & Oso Pkwy under Scenario 4.	Add third eastbound through lane (traffic share = 17%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 southbound on-ramp at Avd Pico under Scenarios 3 and 4.	Widen to a two-lane on-ramp (traffic share = 22%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Crown Valley Pkwy under Scenario 3.	Widen to a two-lane on-ramp (traffic share = 6%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Crown Valley Pkwy under Scenario 3.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 5%).	Significant.
Long range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Ortega Hwy under Scenario 4.	Widen to a two-lane on-ramp or provide separate on-ramps from eastbound and westbound Ortega Hwy (traffic share = 5%).	Less than significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Oso Pkwy under Scenario 3.	Add second drop lane from I-5 to the off-ramp (traffic share = 2%).	Less than significant.
Long range peak hour LOS ramp deficiency: SR 241 northbound on-ramp at Antonio Pkwy under Scenario 3.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 4%).	Less than significant.
Long range peak hour LOS ramp deficiency: SR 241 southbound off-ramp at Antonio Pkwy under Scenarios 3 and 4.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 6%).	Less than significant.
Long range peak hour LOS ramp deficiency: SR 241 northbound on-ramp at Oso Pkwy under Scenarios 3 and 4.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 18%).	Significant.
Long range peak hour LOS ramp deficiency: SR 241 southbound off-ramp at Oso Pkwy under Scenario 4.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 21%).	Less than significant.
I-5 Widening Alternative		
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Crown Valley Pkwy under Scenario 3.	Add fourth southbound through lane and third eastbound left-turn lane (traffic share = 2%).	Less than significant.
Long range peak hour LOS intersection deficiency: Antonio Pkwy-La Pata Ave & Ortega Hwy under Scenarios 1 and 3.	Provide southbound free right-turn lane (traffic share = 2%).	Less than significant.
Long range peak hour LOS intersection deficiency: Antonio Pkwy-La Pata Ave & Ortega Hwy under Scenario 4.	Convert second northbound through lane to shared second through/second right-turn lane (traffic share = 2%).	Significant.
Long range peak hour LOS intersection deficiency: Cm Capistrano & San Juan Creek Rd under Scenario 4.	Convert second northbound through lane to shared second through/second right-turn lane (traffic share = 10%).	Less than significant.
Long range peak hour LOS intersection deficiency: Cm Capistrano & Stonehill Dr under Scenario 1.	Add second eastbound through lane and northbound right-turn lane, and convert second southbound through lane to shared second through/second right-turn lane (traffic share = 8%).	Less than significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long range peak hour LOS intersection deficiency: Felipe Rd & Oso Pkwy under Scenario 4.	Add fourth eastbound through lane and second southbound left-turn lane, and convert second northbound through lane to shared second through/second right-turn lane (traffic share = 4%).	Less than significant.
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Crown Valley Pkwy under Scenario 4.	Add fourth eastbound through lane (traffic share = 8%).	Less than significant.
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Oso Pkwy under Scenario 1.	Add northbound shared second left-turn/second right-turn lane (traffic share = 4%).	Less than significant.
Long range peak hour LOS intersection deficiency: Los Altos & Crown Valley Pkwy under Scenario 4.	Modify southbound approach to provide a left-turn lane and a shared through/right-turn lane and eliminate north/south split phasing (traffic share = 5%).	Less than significant.
Long range peak hour LOS intersection deficiency: Marguerite Pkwy & Avery Pkwy under Scenario 4.	Add southbound right-turn lane (traffic share = 3%).	Less than significant.
Long range peak hour LOS intersection deficiency: Marguerite Pkwy & Crown Valley Pkwy under Scenario 1.	Add third northbound through lane and convert second southbound through lane to shared second through/second right-turn lane (traffic share = 2%).	Significant.
Long range peak hour LOS intersection deficiency: Puerta Real & Crown Valley Pkwy under Scenario 4.	Convert southbound through lane to shared through/second right-turn lane (traffic share = 3%).	Less than significant.
Long range peak hour LOS intersection deficiency: Rancho Viejo Rd & Ortega Hwy under Scenario 1.	Add third eastbound through lane (traffic share = 2%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Avd Pico under Scenario 1.	Widen to a two-lane on-ramp (traffic share = 5%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Avd Vista Hermosa under Scenario 1.	Widen to a two-lane on-ramp (traffic share = 4%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Avd Vista Hermosa under Scenario 1.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 16%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Crown Valley Pkwy under Scenarios 1, 3 and 4.	Widen to a two-lane on-ramp (traffic share = 9%).	Significant.

TABLE 7.2-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure and Traffic Share Percentages	CEQA Level of Significance After Mitigation
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Crown Valley Pkwy under Scenarios 3 and 4.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 11%).	Significant.
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Ortega Hwy under Scenarios 1, 3 and 4.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 9%).	Less than significant.
Long range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Stonehill Dr under Scenarios 1, 3 and 4.	Widen to a two-lane on-ramp (traffic share = 16%).	Significant.
No Action Alternatives		
None.	None.	Not applicable.

(a) The assumptions for each scenario are as follows:
Scenario 1: Committed circulation system with 14,000 DU proposed RMV plan.
Scenario 3: Buildout circulation system with 14,000 DU proposed RMV plan.
Scenario 4: Buildout circulation system with 21,000 DU OCP-2000 plan for RMV.

(b) Mitigation to address these impacts as they relate to FHWA Policy, ramp deficiency and possible indirect impacts to I-5 from the CC Alternative are addressed in Sections 3.7.2 and 3.7.3.

Source: Austin Foust Associates (2003).

Table 7.2-2
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS THAT REMAIN SIGNIFICANT UNDER CEQA AFTER MITIGATION

Locations where Direct Adverse Impacts Occur Compared to the No Action Alternative	Jurisdiction	Build Alternative(s) and Analysis Scenario(s) in which the Direct Adverse Impacts Remain Significant After Mitigation (a)
INTERSECTIONS		
Antonio Parkway & Crown Valley Parkway	County of Orange	• AIO Alternative under Scenario 3 with the proposed at-grade improvement plan.
Antonio Parkway-La Pata Avenue & Ortega Highway	County of Orange	• AIO Alternative under Scenario 4 with either the proposed at-grade or grade separated improvement plan. • I-5 Alternative under Scenario 4.
Antonio Parkway & Oso Parkway	County of Orange	• AIO Alternative under Scenarios 3 and 4 with either the proposed at-grade or grade separated improvement plan.
I-5 northbound ramps & Avenida Pico	San Clemente	• CC under Scenarios 1, 3 and 4. CC-ALPV and A7C-ALPV (under Scenarios 1 and 3.
Marguerite Parkway & Crown Valley Parkway	Mission Viejo	• I-5 Alternative under Scenario 1.
SR 241 northbound ramps & Oso Parkway	Rancho Santa Margarita	• AIO Alternative under Scenarios 3 and 4.
FREEWAY/TOLLWAY RAMPS		
I-5 northbound on-ramp at Avenida Pico	Caltrans/San Clemente	• CC under Scenarios 1, 3 and 4.
I-5 southbound off-ramp at Avenida Pico	Caltrans/San Clemente	• CC under Scenarios 1, 3 and 4. CC-ALPV and A7C-ALPV (Initial and Ultimate) under Scenarios 1 and 3.
I-5 northbound direct on-ramp at Crown Valley Parkway	Caltrans/Mission Viejo	• I-5 Alternative under Scenario 4.
I-5 southbound off-ramp at Crown Valley Parkway	Caltrans/Mission Viejo	• AIO Alternative under Scenario 3. • I-5 Alternative under Scenarios 3 and 4.
I-5 northbound on-ramp at Stonehill Drive	Caltrans/ San Juan Capistrano	• I-5 Alternative under Scenarios 1, 3 and 4.

Table 7.2-2
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS THAT REMAIN SIGNIFICANT UNDER CEQA AFTER MITIGATION

Locations where Direct Adverse Impacts Occur Compared to the No Action Alternative	Jurisdiction	Build Alternative(s) and Analysis Scenario(s) in which the Direct Adverse Impacts Remain Significant After Mitigation (a)
SR 241 northbound on-ramp at Oso Parkway	Caltrans/ Rancho Santa Margarita	• AIO Alternative under Scenario 4.

(a) The assumptions for each scenario are as follows:
Scenario 1: Committed circulation system with 14,000 DU proposed RMV plan.
Scenario 3: Buildout circulation system with 14,000 DU proposed RMV plan.
Scenario 4: Buildout circulation system with 21,000 DU OCP-2000 plan for RMV.

Source: Austin Foust Associates (2003).

TABLE 7.3-1
SUMMARY OF THRESHOLDS AND SIGNIFICANT ADVERSE IMPACTS RELATED TO LAND USE

Alternative	Land Use Impacts		
	Conflicts with an adopted land use plan, plan policy or regulation of an agency with jurisdiction over the project, including but not limited to GPs, SPs, LCPs or ZOs) adopted for the purpose of avoiding or mitigating an environmental effect.	Conflicts with any applicable HCP or NCCP or the Camp Pendleton INRMP.	Physically divides an established community.
FEC-W	Significant	Not Significant	Not Significant
FEC-M	Significant	Not Significant	Not Significant
CC	Significant	Not Significant	Not Significant
CC-ALPV	Significant	Not Significant	Not Significant
A7C-FEC-M	Significant	Not Significant	Not Significant
A7C-ALPV	Significant	Not Significant	Not Significant
AIO (1)	Significant	Not Significant	Significant
I-5 (1)	Significant	Not Significant	Significant
No Action OCP (2)	Significant	Not Significant	Not Significant
No Action RMV (2)	Significant	Not Significant	Not Significant

(1) Even though physical barriers such as I-5 or major arterials such as Antonio Parkway already are in place, the expansion of these facilities would further physically divide existing communities as a result of wider roads, and associated ramps, interchanges and intersections.
(2) The two No Action Alternatives are not consistent with the Master Plan of Arterial Highways (MPAH) and the General Plans which show the MPAH including the FTC-S.

GPs: General Plans.
SPs: Specific Plans.
LCPs: Local Coastal Programs.
ZOs: Zoning Ordinances.
HCP: Habitual Conservation Plan.
NCCP: Natural Communities Conservation Plan.
INRMP: Integrated Natural Resources Plan.

Source: P&D Consultants (2003).

TABLE 7.3-2
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO LAND USE

ADVERSE IMPACTS	MITIGATION MEASURES (1)	CEQA SIGNIFICANCE AFTER MITIGATION
FEC-M ALTERNATIVE		
Existing uses and leases on RMV would be directly impacted.	LU-1 (Existing Uses).	Not Significant.
Uses in San Onofre State Beach Cristianitos Subunit would be impacted.	LU-1 (Existing Uses).	Significant.
FEC-W ALTERNATIVE		
Existing uses and leases on RMV would be directly affected.	LU-1 (Existing Uses) and LU-2 (TRW).	Not significant.
Uses in San Onofre State Beach Cristianitos Subunit would be impacted.	LU-1 (Existing Uses).	Significant.
CC ALTERNATIVE		
Existing and planned land uses in the City of San Clemente would be directly impacted.	LU-1 (Existing Land Uses).	Significant.
Established communities in the City of San Clemente would be physically divided.	LU-1 (Existing Land Uses).	Significant.
Existing uses in the County of Orange would be directly impacted.	LU-1 (Existing Land Uses).	Not significant.
CC-ALPV ALTERNATIVE		
Existing and planned land uses in the City of San Clemente would be directly impacted.	LU-1 (Existing Land Uses).	Significant.
Established communities in the City of San Clemente would be physically divided.	LU-1 (Existing Land Uses).	Significant.
Existing uses in the County of Orange would be directly impacted.	LU-1 (Existing Land Uses).	Significant.
A7C-FEC-M ALTERNATIVE		
Existing uses and leases on RMV would be directly affected.	LU-1 (Existing Uses).	Not significant.
Uses in San Onofre State Beach Cristianitos Subunit would be impacted.	LU-1 (Existing Uses).	Significant.
A7C-ALPV ALTERNATIVE		
Existing and planned land uses in the City of San Clemente and the County of Orange would be directly impacted.	LU-1 (Existing Land Uses).	Significant.
Established communities in the City of San Clemente would be physically divided.	LU-1 (Existing Land Uses).	Significant.
AIO		
Existing land uses in the County of Orange and the City of San Clemente would be directly impacted.	LU-1 (Existing Land Uses).	Significant.
Established communities in the County of Orange and the City of San Clemente would be physically divided.	LU-1 (Existing Land Uses).	Significant.
I-5		
Existing and planned land uses along I-5 would be impacted.	LU-1 (Existing Land Uses).	Significant.
Established communities along I-5 would be physically divided.	LU-1 (Existing Land Uses).	Significant.

TABLE 7.3-2
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO LAND USE

ADVERSE IMPACTS	MITIGATION MEASURES (1)	CEQA SIGNIFICANCE AFTER MITIGATION
NO ACTION-OCP AND NO ACTION-RMV ALTERNATIVES		
No Impacts.	None necessary.	Not significant.
Potential for Cumulative Land Use Impacts		
All the SOCTIIP corridor Alternatives and the AIO Alternative traverse the RMV and, therefore, would contribute to a cumulative land use impact as a result of converting currently undeveloped land to an urban road use. However, this is not an adverse impact for two reasons. First, except for the RMV property, the study area is either developed or planned for development. Second, the conversion of land to a road use for the corridor alternatives would not change the overall balance of different land uses planned in the adopted demographic forecast, OCP-2000. This is also consistent with the Congestion Management Plan and Growth Management Element requirements for the provision of infrastructure. The I-5 Alternative would not contribute to the conversion of undeveloped land because there is very little undeveloped land along this corridor. There would be an adverse impact on residential uses as a result of those SOCTIIP build Alternatives which would result in the acquisition of existing housing or the acquisition of areas approved for housing. However, residential uses continue to be developed throughout Orange County, in Planned Communities (PCs) and infill/redevelopment projects. Therefore, the loss of housing associated with the SOCTIIP Alternatives is somewhat offset by the continued development of housing throughout the County. FEC-W, FEC-M and A7C-FEC-M Alternatives would all have cumulative impacts to the Marine Corps Base Camp Pendleton by impacting the buffer that SOSB provides and creating a physical barrier on the northern boundary of the Base. The other build alternatives would not contribute to cumulative encroachment impacts on Camp Pendleton.		

(1) All temporary occupancy and permanent acquisition of right-of-way for the build alternatives will be conducted consistent with the requirements of the Uniform Relocation and Assistance Real Property Acquisition Polices Act of 1970, as amended (California Government Code, Chapter 16, Section 7260, et. seq.). A mitigation measure regarding compliance with this Act for all temporary use and permanent acquisition of property for the build alternatives is included in Section 4.4 (Affected Environment, Impacts and Mitigation Related to Socioeconomics and Environmental Justice) in the EIS/SEIR. That measure would also apply to the land use impacts of these Alternatives.

Source: P&D Consultants (2003)

TABLE 7.4-1
SUMMARY OF THRESHOLDS AND SIGNIFICANT ADVERSE IMPACTS TO AGRICULTURAL RESOURCES

Alternative	**Agricultural Impacts**		
	Converts Farmland, as shown on maps prepared pursuant to the FMMP of the CRA, to non-agricultural use.	Conflicts with existing zoning for agricultural use or a Williamson Act contract (agricultural preserve).	Involves other changes in the existing environment which, due to their location or nature, could result in conversion of "Farmland" to non-agricultural use.
FEC-W	Significant	Significant	Significant
FEC-M	Significant	Significant	Significant
CC	Significant	Significant	Significant
CC-ALPV	Significant	Significant	Significant
A7C-FEC-M	Not Significant	Significant	Significant
A7C-ALPV	Significant	Significant	Significant
AIO	Significant	Significant	Significant
I-5	Not Significant	Not Significant	Not Significant
No Action OCP	Not Significant	Not Significant	Not Significant
No Action RMV	Not Significant	Not Significant	Not Significant

FMMP: Farmland Mapping and Monitoring Program.
CRA: California Resources Agency.
Source: P&D Consultants (2003).

TABLE 7.4-2
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO AGRICULTURAL RESOURCES

ADVERSE IMPACTS	MITIGATION MEASURES (1)	CEQA SIGNIFICANCE AFTER MITIGATION
FEC-W ALTERNATIVE		
34 ha (83 ac) (I) or 34 ha (85 ac) (U) of rated agricultural land impacted.	AG-1 to AG-3 (RMV Agricultural Operations) and (Camp Pendleton Agricultural Operations), AGC-1.	Significant.
111 ha (275 ac) (I) or 113 ha (281 ac) (U) of agricultural preserves impacted.	None.	Significant.
FEC-M ALTERNATIVE		
23 ha (56 ac) (I) or 25 ha (61 ac) (U) of rated agricultural land impacted.	AG-1 to AG-3 (RMV Agricultural Operations) and (Camp Pendleton Agricultural Operations), AGC-1.	Significant.
124 ha (307 ac) (I) or 134 ha (332 ac) (U) of agricultural preserves impacted.	None.	Significant.
CC ALTERNATIVE		
18 ha (45 ac) (I) or 22 ha (55 ac) (U) of rated agricultural land impacted.	AG-1 to AG-2 (RMV Agricultural Operations), AGC-1.	Significant.
87 ha (214 ac) (I) or 112 ha (277 ac) (U) of agricultural preserves impacted.	None.	Significant.
CC-ALPV ALTERNATIVE		
18 ha (45 ac) (I) or 22 ha (55 ac) (U) of rated agricultural land impacted.	AG-1 to AG-2 (RMV Agricultural Operations), AGC-1.	Significant.
87 ha (214 ac) (I) or 112 ha (277 ac) (U) of agricultural preserves impacted.	None.	Significant.
A7C-FEC-M ALTERNATIVE		
3 ha (7 ac) (I) or 3 ha (7 ac) (U) of rated agricultural land impacted.	AG-1 to AG-3 (RMV Agricultural Operations) and (Camp Pendleton Agricultural Operations), AGC-1.	Significant.
90 ha (224 ac) (I) or 94 ha (231 ac) (U) of agricultural preserves impacted.	None.	Significant.
A7C-ALPV ALTERNATIVE		
3 ha (8 ac) (I) or 4 ha (9 ac) (U) of rated agricultural land impacted.	AG-1 to AG-2 (RMV Agricultural Operations). AGC-1.	Significant.
168 ha (416 ac) (I) or 179 ha (441 ac) (U) of agricultural preserves impacted.	None.	Significant.
AIO		
7 ha (16 ac) of rated agricultural land impacted.	AG-1 to AG-2 (RMV Agricultural Operations), AGC-1.	Significant.
15 ha (37ac) of agricultural preserves impacted.	None.	Significant.
I-5		
No impacts	None necessary.	Not significant.
NO ACTION-OCP AND NO ACTION-RMV		
No Impacts.	None necessary.	Not significant.

TABLE 7.4-2
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO AGRICULTURAL RESOURCES

ADVERSE IMPACTS	MITIGATION MEASURES (1)	CEQA SIGNIFICANCE AFTER MITIGATION
Potential for Cumulative Agricultural Resources Impacts		
The loss of agricultural resources in these areas as a result of the SOCTIIP corridor and AIO Alternatives and other cumulative projects would be an adverse cumulative impact on those resources. The I-5 Alternative would not contribute to an adverse cumulative impact on agricultural resources.		

(1) All temporary occupancy and permanent acquisition of right-of-way for the build alternatives will be conducted consistent with the requirements of the Uniform Relocation and Assistance Real Property Acquisition Polices Act of 1970, as amended (California Government Code, Chapter 16, Section 7260, et. seq.). A mitigation measure regarding compliance with this Act for all temporary use and permanent acquisition of property for the build Alternatives is included in Section 4.4 (Affected Environment, Impacts and Mitigation Related to Socioeconomics and Environmental Justice) in this EIS/SEIR. That measure would also apply to the land use impacts of this Alternative.

I: Initial
U: Ultimate
Source: P&D Consultants (2003).

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Far East Corridor – Modified Alternative			
Residential and Non-Residential Displacements	Displaces two active agricultural operations. Adverse.	SE-2 Property acquisition and relocation assistance.	Less than significant.
Community Cohesion	None.	None required.	Not applicable.
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Rancho Santa Margarita, San Clemente, Orange County and Capistrano Unified School District (CUSD). Adverse.	None proposed.	Less than significant.
	Short term increase in jobs estimated at 19,000 (Initial) or 23,000 (Ultimate), local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (20,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None required.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas planned and currently under development.	None proposed.	Significant.
Far East Corridor – West Alternative			
Residential and Non-Residential Displacement	Displaces one active agricultural operations. Adverse.	SE-2	Less than significant.
Community Cohesion	None.	None required.	Not applicable.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Rancho Santa Margarita, San Clemente, Orange County and CUSD. Adverse.	None proposed.	Less than significant.
	Short term increase in jobs estimated at 17,000 (Initial) or 21,000 (Ultimate), local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (20,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None required.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas planned and currently under development.	None proposed.	Significant.
Central Corridor – Complete Alternative			
Residential and Non-Residential Displacement	Displaces 593 dus and 1,380 persons (Initial) or 602 dus and 1,405 persons (Ultimate). Displaces 106 business, institutional and non-profit uses and 1,100 employees. Substantially adverse.	SE-1 Avoidance and minimization of the temporary use and/or permanent acquisition of residential and non-residential property.	Less than significant.
	Displaces 3 active agricultural operations. Adverse.	SE-2 SE-3 Replacement housing program.	
Community Cohesion	Divides existing neighborhoods in the Talega PC and six community facilities (two senior services facilities and four churches in San Clemente). Substantially adverse.	SE-2	Significant.
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Rancho Santa Margarita, Orange County and CUSD. Adverse.	None proposed.	Less than significant.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	Property acquisition results in an estimated >1.0 percent reduction of the City of San Clemente property tax revenue. Substantially adverse.	None proposed.	Significant.
	Displaces 89 commercial uses and 379 lodging rooms, impacting sales tax and transit occupancy tax (TOT) revenues in the City of San Clemente. The majority are in the Downtown/El Camino Real business district. The displacement of these uses would be an adverse impact at the local level on the City due to a loss of commercial business opportunity, employment, and sales tax and TOT revenues. Potential short term loss of business and sales tax revenues to businesses not displaced in the immediate vicinity of construction activities. Adverse.	SE-1 and SE-2.	Significant
	Loss of capacity at Prima Deshecha Landfill results in increased cost to ratepayers for alternate disposal and a loss of tip fees to the County of Orange. Adverse.	SE-1	Not applicable.
	Short term increase in jobs, estimated at 23,000 (Initial) and 31,000 (Ultimate), local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (18,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None required.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas planned and currently under development.	None proposed.	Significant.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Central Corridor-Avenida La Pata Variation Alternative			
Residential and Non-Residential Displacement	Displaces 2 dus and 7 persons (Initial) and 14 dus and 44 persons (Ultimate). Adverse. Displaces three active agricultural operations. Adverse.	SE-1 and SE-2.	Less than significant.
Community Cohesion	None.	None required.	Not applicable.
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Rancho Santa Margarita, San Juan Capistrano, San Clemente, Orange County and CUSD. Adverse.	None proposed.	Less than significant.
	Loss of capacity at Prima Deshecha Landfill results in increased cost to ratepayers for alternate disposal and loss of tip fees to the County of Orange. Adverse.	SE-1	Not applicable.
	Short term increase in jobs estimated at 15,000 jobs (Initial) and 18,000 (Ultimate) jobs), local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (8,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None required.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas that are planned and currently under development.	None proposed.	Significant.
Alignment 7 Corridor – Far East Crossover-Modified Alternative			
Residential and Non-Residential Displacement	None	None required.	Not applicable.
Community Cohesion	None.	None required.	Not applicable.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Rancho Santa Margarita, San Clemente, Orange County and CUSD. Adverse.	None proposed.	Less than significant.
	Short term increase in jobs, estimated at 17,000 (Initial) and 21,000 (Ultimate), local business revenues and local sales tax revenues due to construction. Beneficial.	None proposed.	Not applicable.
	Long term congestion relief (21,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None proposed.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas planned and currently under development.	None proposed.	Significant.
Alignment 7 Corridor – Avenida La Pata Variation Alternative			
Residential and Non-Residential Displacement	Displaces 80 dus and 256 persons (Initial) or 92 dus and 293 persons (Ultimate). Adverse.	SE-1 and SE-2.	Less than significant.
Community Cohesion	Divides an existing neighborhood in the Talega PC.	SE-2.	Significant.
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Rancho Santa Margarita, San Clemente, Orange County and CUSD. Adverse.	None proposed.	Less than significant.
	Loss of capacity at Prima Deshecha Landfill results in increased cost to ratepayers for alternate disposal and loss of tip fees to the County of Orange. Adverse.	SE-1	Not applicable.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	Short term increase in jobs, estimated at 28,000 (Initial) and 30,000 (Ultimate), local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (8,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.		
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas planned and currently under development.	None proposed.	Significant.
Arterial Improvements Only Alternative			
Residential and Non-Residential Displacement	Displaces 17 business, institutional and non-profit uses and 200 employees. Displaces two active agricultural operations. Adverse.	SE-1 and SE-2.	Less than significant.
Community Cohesion	None.	None required.	Not applicable.
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Mission Viejo, Rancho Santa Margarita, San Juan Capistrano, San Clemente, and CUSD. Adverse.	None proposed.	Less than significant.
	Displaces 4 commercial uses in the City of Rancho Santa Margarita. It appears there are sufficient replacement resources to accommodate the displaced uses in the replacement area, and the impact on sales tax revenues should be minor. Adverse.	SE-1 and SE-2.	Less than significant.
	Loss of capacity at Prima Deshecha Landfill results in increased cost to ratepayers for alternate disposal and loss of tip fees to the County of Orange. Adverse.	SE-1.	Not applicable.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	Short term increase in jobs (11,000), local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (5,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None required.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively greater than for Alternatives that pass primarily through existing developed areas and areas planned and currently under development.	None proposed.	Significant.
I-5 Alternative			
Residential and Non-Residential Displacement	Displaces 838 dus and 1,970 persons. Displaces 382 business, institutional and non-profit uses and 4,150 employees. Substantially adverse.	SE-1, SE-2 and SE-3.	Less than significant.
Community Cohesion	Displace seven community facilities, including one USPS Post Office, one City administrative office, four churches and one private school, in Laguna Hills, Laguna Niguel, Lake Forest, San Clemente, and San Juan Capistrano. Substantially adverse.	SE-1 and SE-2.	Significant.
Economic Impacts	Property acquisition results in minor reduction in property tax revenues (<1.0%) to Dana Point, Irvine, Laguna Hills, Laguna Niguel, Lake Forest, County of Orange, CUSD, SVUSD and IUSD. Adverse.	None proposed.	Less than significant.
	Property acquisition results in an estimated >1.0 percent reduction of Mission Viejo, San Juan Capistrano, and San Clemente property tax revenue. Substantially adverse.	None proposed.	Significant.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	Displaces 336 commercial uses and 497 lodging rooms, impacting sales tax and TOT revenues in Laguna Hills, Laguna Niguel, Lake Forest, Mission Viejo, San Juan Capistrano and San Clemente. Many displacements are in the San Clemente Downtown/El Camino Real business district. Displacement of existing commercial and lodging uses would be an adverse impact at the local level on Laguna Niguel and San Clemente due to a loss of commercial business opportunity, employment, and sales tax and TOT revenues. Potential short term loss of business revenue and sales tax revenue to businesses not displaced in the immediate vicinity of construction activities. Adverse.	SE-1 and SE-2.	Significant
	Short term increase in employment opportunities, estimated at 43,000 jobs local business revenues and local sales tax revenues due to construction. Beneficial.	None required.	Not applicable.
	Long term congestion relief (20,000 hours of vehicle travel time per day in 2025) resulting in economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Beneficial.	None required.	Not applicable.
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively lower than for Alternatives that pass primarily through unplanned/uncommitted areas, primarily RMV.	None proposed.	Significant.
No Action Alternatives			
Residential and Non-Residential Displacement	None.	None required.	Not applicable.
Community Cohesion	None.	None required.	Not applicable.
Economic Impacts	Foregone long term congestion relief (ranging from 5,000 to 21,000 hours of vehicle travel time per day in	None proposed.	Not applicable.

TABLE 7.5-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR SOCIOECONOMICS AND GROWTH INDUCEMENT

Parameter	Adverse and Substantially Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	2025 compared to Build Alternatives) and resulting economic benefits in terms of the value of time saved and increased economic activity from improved mobility for people, goods and services. Substantially adverse. (Not a CEQA issue, economic only)		
Growth Inducement	Potential to facilitate and support growth. These effects would be relatively lower than for Alternatives that pass primarily through unplanned/uncommitted areas, primarily RMV.	None proposed.	Significant.
Potential for Cumulative Socioeconomics and Environmental Justice Impacts			
The SOCTIIP Alternatives and other cumulative projects will not result in cumulative adverse impacts related to residential and non-residential displacements, community cohesion, economics and Environmental Justice. The SOCTIIP build Alternatives and the No Action Alternative potentially could contribute to cumulative impacts relating to facilitating or supporting growth in the study area. The cumulative effects of this growth could result in impacts on a variety of areas, including agricultural resources, hydrology/drainage, water quality, air quality, noise, biological resources, aesthetics, cultural resources, recreation, mineral resources, public services, and utilities and services. Potential cumulative impacts in these areas are discussed in the respective sections addressing these issues. Other related topics such as changes in travel patterns and accessibility, impacts on public safety and traffic safety are found in other tables in this Section.			

[1] The full text of all the mitigation measures is provided in Section 4.4 (Affected Environment, Impacts and Mitigation Measures Related to Socioeconomics and Environmental Justice) in the EIS/SEIR.
[2] For methodology regarding residential and non-residential displacements, refer to Section 4.4.2 in the EIS/SEIR.
Source: P&D Consultants (2003).

TABLE 7.6-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PEDESTRIAN AND BICYCLE FACILITIES

Impacts	Mitigation Measure (1)	CEQA Significance After Mitigation
FEC-M Alternative		
Temporary closure of Proposed San Juan Creek Trail Extension.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek Trail Extension.	R-5	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek Trail Extension.	Air quality mitigation.	Significant.
Permanent visual impacts to Proposed San Juan Creek Trail Extension.	Visual impacts mitigation.	Significant.
Two temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
FEC-W Alternative		
Temporary closure of Proposed San Juan Creek Trail Extension and the Proposed Cristianitos Trail.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek Trail Extension and the Proposed Cristianitos Trail.	R-5	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek Trail Extension and Proposed Cristianitos Trail.	Air quality mitigation.	sSignificant.
Permanent visual impacts to Proposed San Juan Creek Trail Extension and Proposed Cristianitos Trail.	Visual impacts mitigation.	Significant.
Three temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
CC Alternative		
Temporary closure of Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trails.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek and Proposed Prima Deshecha Trails.	R-5.	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek Trail Extension, Ladera Ranch Open Space Trail and Proposed Prima Deshecha Trails and San Juan Capistrano Open Space and Trails.	Air quality mitigation.	Significant.

TABLE 7.6-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PEDESTRIAN AND BICYCLE FACILITIES

Impacts	Mitigation Measure (1)	CEQA Significance After Mitigation
Permanent visual impacts to Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trails and Ladera Ranch Open Space Trail.	Visual impacts mitigation.	Significant.
15 Temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
CC-ALPV Alternative		
Temporary closure of Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trails.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek and Proposed Prima Deshecha Trails.	R-5	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek Trail Extension, Ladera Ranch Open Space Trails and Proposed Prima Deshecha Trails.	Air quality mitigation.	Significant.
Permanent visual impacts to Proposed San Juan Creek and Proposed Prima Deshecha Trails.	Visual impacts mitigation.	Significant.
Five temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
A7C-FEC-M Alternative		
Temporary closure of proposed San Juan Creek Trail Extension and Proposed Cristianitos Trail.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek Trail Extension and Proposed Cristianitos Trail.	R-5	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek Trail Extension and Proposed Cristianitos Trail.	Air quality mitigation.	Significant.
Permanent visual impacts to Proposed San Juan Creek Trail Extension and Proposed Cristianitos Trails.	Visual impacts mitigation.	Significant.
Three temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.

TABLE 7.6-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PEDESTRIAN AND BICYCLE FACILITIES

Impacts	Mitigation Measure (1)	CEQA Significance After Mitigation
A7C-ALPV Alternative		
Temporary closure of Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trails.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek and Proposed Prima Deshecha Trails.	R-5	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek and Proposed Prima Deshecha Trails.	Air quality mitigation.	Significant.
Permanent visual impacts to Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trails.	Visual impacts mitigation.	Significant.
Five temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
AIO Alternative		
Temporary closure of Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trail.	R-5	Less than significant.
Permanent acquisition of a portion of Proposed San Juan Creek Trail Extension and Proposed Prima Deshecha Trail.	R-5.	Less than significant.
Air quality impacts during construction to Proposed San Juan Creek Trail Extension, Proposed Prima Deshecha Trails and existing San Juan Capistrano Open Space and Trails.	Air quality mitigation.	Less than significant.
Eight temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
I-5 Alternative		
Temporary closure of the existing Aliso Creek Trail, existing Trabuco Ridge Trail, existing San Juan Creek Trail, proposed Oso Creek Trail Extension and proposed Marblehead Bluffs Trails.	R-5	Less than significant.
Permanent acquisition of parts of the existing Aliso Creek Trail, existing Trabuco Ridge Trail, existing San Juan Creek Trail, proposed Oso Creek Trail Extension and proposed Marblehead Bluffs Trails.	R-5.	Less than significant.

TABLE 7.6-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PEDESTRIAN AND BICYCLE FACILITIES

Impacts	Mitigation Measure (1)	CEQA Significance After Mitigation
Air quality impacts during construction to existing Aliso Creek Trail, existing Trabuco Ridge Trail, existing San Juan Creek Trail, proposed Oso Creek Trail Extension and Proposed Marblehead Bluffs Trail.	Air quality mitigation.	Less than Significant.
Forty-one temporary bikeway closures during construction.	Bicycle facilities will be rerouted during construction to an open alternate road.	Less than significant.
Temporary sidewalk closures during construction.	Pedestrian facilities will be rerouted during construction to an open alternate road.	Less than significant.
No Action Alternatives		
No short term or permanent impacts on pedestrian and bicycle facilities.	None.	No impact.
Potential for Cumulative Pedestrian and Bicycle Facilities Impacts		
The SOCTIIP build Alternatives and other cumulative projects will include provisions to accommodate trails and will not result in cumulative adverse impacts to pedestrian and bicycle facilities.		

(1) The full text of all mitigation measures is provided in Section 4.5 (Affected Environment, Impacts and Mitigation Measures Related to Pedestrian and Bicycle Facilities) in the EIS/SEIR.

Source: P&D Consultants (2003).

TABLE 7.7-1
CONSTRUCTION NOISE IMPACT SUMMARY

Alternative [1]	Construction In All Areas Except San Clemente					Construction in San Clemente [6]				
	Will Pile Driving Impacts Occur Within 850 m (2,800 ft)?)[2]	Will Heavy Grading Impacts Occur Within 1,500 m (5,000 ft)?	Will General Construction Impacts Occur Within 275 m (900 ft)?	Will Haul Route Use Have The Potential To Cause Impacts? [4]	Will Nighttime Demolition Cause Noise Impacts?	Will Pile Driving Impacts Occur Within 500 m (1,600 ft)? [5]	Will Heavy Grading Impacts Occur Within 150 m (500 ft)?	Will General Construction Impacts Occur Within 27 m (90 ft)?	Will Haul Route Use Have The Potential To Cause Impacts?	Will Nighttime Demolition Cause Noise Impacts?
FEC-W	Night	Night	Night	Possible	No	Yes	Yes	Yes	Possible	No
FEC-M	Night	Night	Night	Possible	No	No	No	No	Possible	No
CC	Night.	Night.	Night.	Possible	No	Yes	Yes	Yes	Possible	No
CC-ALPV	No[3]	Night	Night	Possible	No	Yes	Yes	Yes	Possible	No
A7C-ALPV	No	Night	Night	Possible	No	Yes	Yes	Yes	Possible	No
A7C-FEC-M	Night.	Night.	Night.	Possible	No	No	No	No	Possible	No
AIO	No	Night.	Night.	Possible	No	No	No	No	Possible	No
I-5	Night.	Night.	Night.	Possible	**Yes**[7]	Yes	Yes	Yes	Possible	**Yes**[7]

Notes:
1. The potential for construction noise impacts is the same for the Initial and Ultimate corridor.
2. Night. Impacts would only occur if night or weekend construction was necessary and there are sensitive uses within the distance indicated in the column heading.
3. No: No impacts are projected for this category of construction noise for these Alternatives.
4. Possible. Haul routes impacts are possible depending on the routes, number of trucks and adjacent land uses.
5. Yes: Impacts are definitely projected for this category of construction noise.
6. Construction between 6:00 PM and 7:00 AM or anytime on Sunday is prohibited in San Clemente.
7. Impacts that cannot be mitigated to below a level of significance are shown in bold. In this case, the nighttime demolition for the I-5 Alternative cannot be mitigated to below a level of significance because of the heightened sensitivity of receptors at night.

Source: Mestre Greve Associates (2003).

TABLE 7.7-2
SUMMARY OF IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR NOISE

Alternative[2]	Impacts Before Noise Abatement				Impacts With Noise Abatement[1]				Mitigation Measures[3]	CEQA Significance After Mitigation
	# of Res.	# of Bus.	# of Schools	# of Parks	# of Res.	# of Bus.	# of Schools	# of Parks		
FEC-M	50	0	2	2	1	0	0	0	N7, N8, N9 and N10	Less than significant.
FEC-W	50	0	2	2	1	0	0	0	N7, N8, N9 and N10	Less than significant.
CC	290	1	4	0	0	0	0	0	N7, N8, N9 and N10	Less than significant.
CC-ALPV	30	0	1	0	0	0	0	0	N7, N8, N9 and N10	Less than significant.
A7C-FEC-M	120	0	2	2	1	0	0	0	N7, N8, N9 and N10	Less than significant.
A7C-ALPV	65	0	1	0	0	0	0	0	N7, N8, N9 and N10	Less than significant.
AIO	0	0	1	0	0	0	0	0	N7, N8, N9 and N10	Less than significant.
I-5	775	5	8	4	225	0	0	1	N7, N8, N9 and N10	Less than significant.
No Action-OCP-2000	585	8	9	2	n/a	n/a	n/a	n/a	n/a	Less than significant.
No Action-RMV	585	8	9	2	n/a	n/a	n/a	n/a	n/a	Less than significant.

1. Based on minimum wall heights satisfying Caltrans Criteria (i.e. at least 5 dB reduction and breaks line-of-sight (LOS) to 3.5m, although barrier height may vary).
2. All of the areas exceeding the NAC under the No Action Alternative are located along I-5. Note that these exceedances would occur with any of the build Alternatives but are not included in the table above because noise abatement for these areas is not required under the build Alternatives. These areas are included in the I-5 Widening Alternative.
3. The full text of the mitigation measures is provided in Section 4.6 (Affected Environment, Impacts and Mitigation Measures Related to Noise).

Source: Mestre Greve Associates (2003).

TABLE 7.8-1
SCAQMD EMISSION THRESHOLDS OF SIGNIFICANCE

Pollutant	Threshold		
	Construction		Operation
	kilograms/day (pounds/day)	tonnes/quarter (tons/quarter)	kilograms/day (pounds/day)
Carbon Monoxide (CO)	249 (550)	22.45 (24.75)	249.48 (550)
Reactive Organic Compounds (ROC)	34 (75)	2.27 (2.5)	24.95 (55)
Nitrogen Oxides (NO_x)	45 (100)	2.27 (2.5)	24.95 (55)
Sulfur Oxides (SO_x)	68 (150)	6.12 (6.75)	68.04 (150)
Particulate Matter (PM10)	68 (150)	6.12 (6.75)	68.04 (150)

Source: South Coast Air Quality Management District. CEQA Air Quality Handbook, (November, 1993).

TABLE 7.8-2
SUMMARY OF DIRECT ADVERSE CONSTRUCTION AND OPERATIONS IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR AIR QUALITY

Impacts	Mitigation Measure	CEQA Level Of Significance After Mitigation
FEC-W Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
FEC-M Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CC Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.

TABLE 7.8-2
SUMMARY OF DIRECT ADVERSE CONSTRUCTION AND OPERATIONS IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR AIR QUALITY

Impacts	Mitigation Measure	CEQA Level Of Significance After Mitigation
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CC-ALPV Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
A7C-FEC-M Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
A7C-ALPV Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.

TABLE 7.8-2
SUMMARY OF DIRECT ADVERSE CONSTRUCTION AND OPERATIONS IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR AIR QUALITY

Impacts	Mitigation Measure	CEQA Level Of Significance After Mitigation
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
AIO Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
CO will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
NO_x will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
I-5 Alternative		
Construction Impacts		
HC will exceed SCAQMD threshold during construction.	AQ-3	Significant.
CO will exceed SCAQMD threshold during construction.	AQ-3	Significant.
NO_x will exceed SCAQMD threshold during construction.	AQ-3	Significant.
PM_{10} and fugitive dust will exceed SCAQMD threshold during construction	AQ-1, AQ-2, AQ-4 and AQ-5	Significant.
Operations Impacts		
HC will exceed SCAQMD threshold during operation.	None proposed.	Significant.
CO will exceed SCAQMD threshold during operation.	None proposed.	Significant.
NO_x will exceed SCAQMD threshold during operation.	None proposed.	Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not applicable.	Not Significant.
No Action Alternatives-OCP 2000 and RMV Development Plan		
Construction Impacts		
HC will not exceed SCAQMD threshold during construction.	Not applicable.	Not Significant.
CO will not exceed SCAQMD threshold during construction.	Not applicable.	Not Significant.
NO_x will not exceed SCAQMD threshold during construction.	Not applicable.	Not Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during construction	Not applicable.	Not Significant.

TABLE 7.8-2
SUMMARY OF DIRECT ADVERSE CONSTRUCTION AND OPERATIONS IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR AIR QUALITY

Impacts	Mitigation Measure	CEQA Level Of Significance After Mitigation
Operations Impacts		
HC will not exceed SCAQMD threshold during operation.	Not Applicable.	Not Significant.
CO will not exceed SCAQMD threshold during operation.	Not Applicable.	Not Significant.
NO_x will not exceed SCAQMD threshold during operation.	Not Applicable.	Not Significant.
PM_{10} and fugitive dust will not exceed SCAQMD threshold during operation.	Not Applicable.	Not Significant.
Potential for Cumulative Air Quality Impacts		
All the SOCTIIP build Alternatives result in an increase of emissions due to construction. This increase in emissions is projected to be substantial for all pollutants and, if other projects are under construction concurrently, would contribute to a cumulative adverse short term air quality impact. The operation of SOCTIIP build Alternatives and other cumulative projects would contribute to continued NO_x emissions in the region.		

(1) The full text of all mitigation measures is provided in Section 4.7 (Affected Environment, Impacts and Mitigation Measures Related to Air Quality).

HC Hydrocarbon
CO Carbon Monoxide
No_x Nitrogen Oxide
PM_{10} Particable Matter > 10 microns
SCAQMD South Coast Air Quality Management District

Source: Mestre Greve Associates (2003).

Table 7.8-2A
Modeled 70-Year Average DPM Concentrations Along I-5

	Distance From Edge of Roadway	DPM Concentration (µg/m3)			
		No Project	I-5 Widening	Corridor Connects at Avenida Pico	Corridor Connects at OC/SDC Border
Inland Side	122m (400')	0.0511	0.0554	0.0559	0.0457
	30.5m (100')	0.1261	0.1370	0.1383	0.1126
	6.1m (20')	0.2022	0.2106	0.2125	0.1806
Coastal Side	6.1m (20')	0.0940	0.1029	0.1038	0.0840
	30.5m (100')	0.0490	0.0539	0.0544	0.0438
	122m (400	0.0203	0.0217	0.0219	0.0181

Source: Mestre Greve Associates (2003).

Table 7.8-2B
Residential Calculated Cancer Risk Along I-5

	Distance From Edge of Roadway	Cancer Risk Per Million				Change Over No Project		
		No Project	I-5 Widening	Corridor Connects at Avenida Pico	Corridor Connects at OC/SDC Border	I-5 Widening	Corridor Connects at Avenida Pico	Corridor Connects at OC/SDC Border
Inland Side	122m (400')	15.3	16.6	16.8	13.7	1.3	1.4	-1.6
	30.5m (100')	37.8	41.1	41.5	33.8	3.3	3.7	-4.0
	6.1m (20')	60.7	63.2	63.7	54.2	2.5	3.1	-6.5
Coastal Side	6.1m (20')	28.2	30.9	31.2	25.2	2.7	3.0	-3.0
	30.5m (100')	14.7	16.2	16.3	13.1	1.4	1.6	-1.6
	122m (400')	6.1	6.5	6.6	5.4	0.4	0.5	-0.6
Significance Threshold		**n/a**	**n/a**	**n/a**	**n/a**	**10.0**	**10.0**	**10.0**

n/a – Significance threshold is relative to change in risk caused by the project rather than the overall risk which includes risk that occurs without the project. Therefore, the significance threshold is not applicable to the overall risk factors.

Source: Mestre Greve Associates (2003).

Table 7.8-2C
Residential Calculated Non-Cancer Risk Along I-5

	Distance From Edge of Roadway	Hazard Index				Change Over No Project		
		No Project	I-5 Widening	Corridor Connects at Avenida Pico	Corridor Connects at OC/SDC Border	I-5 Widening	Corridor Connects at Avenida Pico	Corridor Connects at OC/SDC Border
Inland Side	122m (400')	0.010	0.011	0.011	0.009	0.001	0.001	-0.001
	30.5m (100')	0.025	0.027	0.028	0.023	0.002	0.002	-0.003
	6.1m (20')	0.040	0.042	0.042	0.036	0.002	0.002	-0.004
Coastal Side	6.1m (20')	0.019	0.021	0.021	0.017	0.002	0.002	-0.002
	30.5m (100')	0.010	0.011	0.011	0.009	0.001	0.001	-0.001
	122m (400')	0.004	0.004	0.004	0.004	0.000	0.000	0.000
Significance Threshold		**n/a**	**n/a**	**n/a**	**n/a**	**1.000**	**1.000**	**1.000**

n/a – Significance threshold is relative to change in Hazard Index caused by the project rather than the overall Hazard Index which includes risk that occurs without the project. Therefore, the significance threshold is not applicable to the overall Hazard Index.

Source: Mestre Greve Associates (2003).

Table 7.8-2D
Modeled DPM Concentrations Along the Northern Extent of the Corridor Build Alternatives

	Distance From Edge of Roadway (ft)	Average DPM Concentration ($\mu g/m^3$)			
		2008-2025/Toll		2026-2078/Toll Free	
		4-Lane Corridor	8-Lane Corridor	4-Lane Corridor	8-Lane Corridor
To West	762m (2500')	0.0024	0.0025	0.0019	0.0019
	381m (1250')	0.0043	0.0047	0.0035	0.0036
	30.5m (100')	0.0239	0.0285	0.0193	0.0215
	15.2m (50')	0.0316	0.0384	0.0256	0.0290
	6.1m (20')	0.0398	0.0489	0.0322	0.0370
To East	6.1m (20')	0.0156	0.0206	0.0122	0.0155
	15.2m (50')	0.0121	0.0147	0.0095	0.0111
	30.5m (100')	0.0090	0.0106	0.0071	0.0079
	381m (1250')	0.0014	0.0015	0.0011	0.0011
	762m (2500')	0.0007	0.0007	0.0005	0.0005

Source: Mestre Greve Associates (2003).

Table 7.8-2E
70-Year Average DPM Concentrations Along the Northern Extent of the Corridor Build Alternatives

	Distance From Edge of Roadway	70 Year Average DPM Concentration (µg/m³)		
		4-Lane Corridor (Scenario 1)	4/8-Lane Corridor (Scenario 2)	8-Lane Corridor (Scenario 3)
To West	762m (2500')	0.0020	0.0020	0.0020
	381m (1250')	0.0037	0.0037	0.0038
	30.5m (100')	0.0204	0.0221	0.0232
	15.2m (50')	0.0270	0.0297	0.0313
	6.1m (20')	0.0340	0.0377	0.0399
To East	6.1m (20')	0.0131	0.0155	0.0167
	15.2m (50')	0.0102	0.0113	0.0119
	30.5m (100')	0.0075	0.0082	0.0086
	381m (1250')	0.0012	0.0012	0.0012
	762m (2500')	0.0006	0.0006	0.0006

Source: Mestre Greve Associates (2003).

Table 7.8-2F
Calculated Cancer Risks Along the Northern Extent of the Corridor Build Alternatives

	Distance From Edge of Roadway	Cancer Risk Per Million		
		4-Lane Corridor	4/8-Lane Corridor	8-Lane Corridor
To West	762m (2500')	0.6	0.6	0.6
	381m (1250')	1.1	1.1	1.2
	30.5m (100')	6.1	6.6	7.0
	15.2m (50')	8.1	8.9	9.4
	6.1m (20')	10.2	11.3	12.0
To East	6.1m (20')	3.9	4.7	5.0
	15.2m (50')	3.0	3.4	3.6
	30.5m (100')	2.3	2.5	2.6
	381m (1250')	0.4	0.4	0.4
	762m (2500')	0.2	0.2	0.2
Significance Threshold		**10.0**	**10.0**	**10.0**

Source: Mestre Greve Associates (2003).

Table 7.8-2G
Calculated Non-Cancer Risks Along the Northern Extent of the Corridor Build Alternatives

	Distance From Edge of Roadway	Hazard Index		
		4-Lane Corridor	4/8-Lane Corridor	8-Lane Corridor
To West	762m (2500')	0.0004	0.0004	0.0004
	381m (1250')	0.0007	0.0007	0.0008
	30.5m (100')	0.0041	0.0044	0.0046
	15.2m (50')	0.0054	0.0059	0.0063
	6.1m (20')	0.0068	0.0075	0.0080
To East	6.1m (20')	0.0026	0.0031	0.0033
	15.2m (50')	0.0020	0.0023	0.0024
	30.5m (100')	0.0015	0.0016	0.0017
	381m (1250')	0.0002	0.0002	0.0002
	762m (2500')	0.0001	0.0001	0.0001
Significance Threshold		**1.0000**	**1.0000**	**1.0000**

Source: Mestre Greve Associates (2003).

TABLE 7.11-1
SUMMARY OF IMPACTS AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES, AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES

	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5
Vegetation Community								
Venturan-Diegan Coastal Sage Scrub (2.3)	SU	SU	SU	SU	SU	SU	SU	SU
Other Scrub (2.1, 2.4, 2.7)	SU	SU	SU		SU	SU		SU
Coastal Sage Scrub/ Grassland Ecotone (2,8)	SU	SU	SU	SU	SU	SU	SU	
Chaparral/Sage Scrub Ecotone (3.1)	SU	SU	SU	SU	SU	SU	SU	
Chaparral Communities (3.2, 3.3, 3.7, 3.12)	NS	NS	NS	NS	NS	NS	NS	NS
Native Grassland (4.2, 4.3, 4.4)	SU	SU	SU	SU	SU	SU	SU	
Annual Grassland (4.1)	NS	NS	NS	NS	NS	NS	NS	
Ruderal Grassland (4.6)	NS	NS	NS	NS	NS	NS	NS	NS
Vernal Pools, Seeps, & Wet Meadows (5.0)	SM	SM	SM		SM	SM	SM	SM
Marsh Communities (6.0)	SM	SM	SM	SM		SM		SM
Riparian Herb and Mule Fat Scrub (7.1, 7.3)	SM	SM	SM	SM	SM	SM	SM	SM
Other Riparian Communities (7.2, 7.4, 7.5, 7.6, 7.7, 7.8)	SM	SM	SM	SM	SM	SM	SM	SM
Coast Live Oak Woodland (8.1)	SM	SM	SM	SM	SM	SM	SM	SM

TABLE 7.11-1
SUMMARY OF IMPACTS AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES, AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES

	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5
Blue Elderberry Woodland (8.4)	SM	SM			SM	SM	SM	
Lakes, Reservoirs, & Basins (12.0)	SM	SM	SM	SM		SM		
Water Courses (13.0)	SM	SM	SM	SM	SM	SM	SM	SM
Cliff and Rock Communities (10.3)	SU	SU	SU	SU		SU		
Agriculture (14.0)	NS	NS	NS	NS	NS	NS	NS	NS
Developed, Disturbed, Graded (15.0, 16.0)	NS	NS	NS	NS	NS	NS	NS	NS
Plant Species								
Coulter's saltbush (*Atriplex coulteri*)	SU	SU	SU	SU	SU			
Thread-leaved brodiaea (*Brodiaea filifolia*)	SU	SU			SU	SU		
Catalina mariposa lily (*Calochortus catalinae*)	NS	NS	NS	NS	NS	NS		
Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*)	SU	SU	SU	SU	SU	SU		
Southern tarplant (*Centromadia* [*Hemizonia*] *parryi* ssp. *australis*)	SU	SU	SU	SU	SU	SU		
Prostrate spineflower (*Chorizanthe procumbens*)								

TABLE 7.11-1
SUMMARY OF IMPACTS AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES, AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES

	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5
Many-stemmed dudleya (*Dudleya multicaulis*)	SU	SU	SU	SU	SU	SU		
Beaked spikerush (*Eleocharis rostellata*)			NS	NS				
Palmer's grapplinghook (*Harpagonella palmeri*)	SU	SU			SU	SU		
Hedge-leaved horkelia (*Horkelia cuneata* ssp. *cuneata*)								
California juniper (*Juniperus californica*)			NS	NS	NS	NS		
Small-flowered microseris (*Microseris douglasii* var. *platycarpha*)	NS							
Salt spring checkerbloom (*Sidalcea neomexicana*)					NS			
FISH								
Arroyo chub	SM	SM	SM	SM	SM	SM		
Southern steelhead trout	SM	SM				SM		
Tidewater Goby	SM	SM				SM		
REPTILES/AMPHIBIANS								
Arroyo toad	SM	SM				SM	SM	
Coastal rosy boa	NS	NS			NS			

TABLE 7.11-1
SUMMARY OF IMPACTS AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES, AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES

	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5
Coastal western whiptail	NS	NS	NS	NS	NS	NS		
Coast patch-nosed snake	NS	NS			NS			
Coronado Island skink	NS	NS			NS	NS		
Orange-throated whiptail	NS	NS	NS	NS	NS	NS		
Red diamond rattlesnake	NS	NS	NS	NS	NS	NS		
San Bernardino ringneck snake	NS	NS	NS	NS	NS	NS		
San Diego banded gecko	NS	NS			NS			
San Diego horned lizard	NS	NS	NS	NS	NS	NS		
Silvery legless lizard	NS	NS						
Southwestern pond turtle	NS	NS						
Two-striped garter snake	NS	NS	NS	NS	NS	NS		
Western spadefoot toad	NS	NS			NS	NS		
BIRDS								
Common barn owl					SM	SM		
Coastal California gnatcatcher	SU	SU	SU	SU	SU	SU	SU	
Cooper's hawk	SM	SM				SM		SU
Ferruginous hawk			SM	SM				
Grasshopper sparrow	SM	SM	SM	SM	SM	SM	SM	

TABLE 7.11-1
SUMMARY OF IMPACTS AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES, AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES

	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5
Great horned owl								
Least Bell's vireo			SM	SM	SM		SM	
Loggerhead shrike							SM	
Osprey								
Peregrine falcon			NS	NS				
Prairie falcon	SM	SM						
Red-shouldered hawk	SM		SM	SM				SM
Red-tailed hawk	SM	SM	SM	SM	SM	SM	SM	SM
Rufous-crowned sparrow	SM	SM	SM	SM	SM	SM		
San Diego cactus wren	SM	SM	SM	SM	SM	SM		
Sharp shinned hawk								
White-tailed kite								
Yellow-breasted chat			SM	SM			SM	
Yellow warbler								
MAMMALS								
Yuma myotis	NS	NS						
Pallid bat	NS	NS	NS	NS				
Pocketed free-tailed bat	NS	NS	NS	NS				
Western mastiff bat	NS	NS	NS	NS	NS	NS		
Pacific pocket mouse								
OTHER								
Wetlands	SM	SM	SM	SM	SM	SM	SM	SM

TABLE 7.11-1
SUMMARY OF IMPACTS AND LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO WETLANDS AND WATERS OF THE UNITED STATES, WILDLIFE, FISHERIES, AND VEGETATION, AND THREATENED AND ENDANGERED SPECIES

	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M	AIO	I-5
Corridors	SM	SM	SM	SM	SM	SM	SM	SM
Policies and Ordinances	NS	NS	NS	NS	NS	NS	NS	NS

SU: Significant and unmitigable.
SM: Significant, can be mitigated to below a level of significance.
NS: Not significant.
A blank cell indicates that the Alternative(s) is not anticipated to impact the resource, because the resource has not been identified within the area of the specific Alternative.
Source: P&D Consultants (2003).

TABLE 7.17-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

Resource #	Initial	Ultimate	NRHP Eligibility (1)	Mitigation Measures (2)	Significance After Mitigation
FAR EAST CORRIDOR-MODIFIED (FEC-M) ALTERNATIVE					
CA-ORA-1561	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1559	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1106	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1560	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-912	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-921/1127	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-914	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-915	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-916	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1452	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1175	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-363	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-362	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-22	Yes	Yes	Yes - listed	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-13,325	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-1075	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-4412	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-1074	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
FAR EAST CORRIDOR-WEST (FEC-W) ALTERNATIVE					
CA-ORA-1561	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1559	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1106	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1560	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-912	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-921/1127	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-914	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.

TABLE 7.17-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

Resource #	Initial	Ultimate	NRHP Eligibility (1)	Mitigation Measures (2)	Significance After Mitigation
CA-ORA-915	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-916	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-917	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-920	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1175	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-363	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-362	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-22	Yes	Yes	Yes - listed	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-13,325	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-1075	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-4412	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-1074	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CENTRAL CORRIDOR - COMPLETE (CC) ALTERNATIVE					
CA-ORA-1561	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1560	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1447	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-997	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1042	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1043	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-882	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-26	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-700	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-781	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-780	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-779	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-907/908	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-639	Yes	No	Yes	AR-1, AR-2, AR-3	Potentially significant.

TABLE 7.17-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

Resource #	Initial	Ultimate	NRHP Eligibility (1)	Mitigation Measures (2)	Significance After Mitigation
CA-ORA-504	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-599	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-22 (includes CA-SDI-4282, -4535, -8435, -11703, -11929, -13071)	Yes	Yes	Yes - listed	AR-1, AR-2, AR-3	Potentially significant.
CENTRAL CORRIDOR-AVENIDA LA PATA VARIATION (CC-ALPV) ALTERNATIVE					
CA-ORA-1561	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1560	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1447	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-997	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1042	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1043	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-882	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-26	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-700	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-781	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-780	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-779	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-907/908	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
ALIGNMENT 7 CORRIDOR - FAR EAST CROSSOVER - MODIFIED (A7C-FEC-M) ALTERNATIVE					
CA-ORA-1561	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1560	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1562	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-912	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-921/1127	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-914	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-915	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-916	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.

TABLE 7.17-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

Resource #	Initial	Ultimate	NRHP Eligibility (1)	Mitigation Measures (2)	Significance After Mitigation
CA-ORA-917	No	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-920	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1175	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-363	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-362	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-22	Yes	Yes	Yes- listed	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-13,325	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-1075	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-4412	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-SDI-1074	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1559	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
ALIGNMENT 7 CORRIDOR – AVENIDA LA PATA VARIATION (A7C-ALPV) ALTERNATIVE					
CA-ORA-881	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-882	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1561	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-902	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1042	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1043	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1050	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1177	Yes	Yes	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-907/908	Yes	Yes	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1562	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1559	Yes	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1560	No	Yes	Unknown	AR-1, AR-2, AR-3	Potentially significant.
ARTERIAL IMPROVEMENTS ONLY (AIO) ALTERNATIVE					
CA-ORA-895			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-893			Yes	AR-1, AR-2, AR-3	Potentially significant.

TABLE 7.17-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

Resource #	Initial	Ultimate	NRHP Eligibility (1)	Mitigation Measures (2)	Significance After Mitigation
CA-ORA-886			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1335			Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-881			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-902			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-26			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-700			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-781			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-640			No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-639			Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-638			Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1053			Unknown	AR-1, AR-2, AR-3	Potentially significant.

TABLE 7.17-1
SUMMARY OF DIRECT ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR HISTORIC AND ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

Resource #	NRHP Eligibility (1)	Mitigation Measures (2)	Significance After Mitigation
I-5 WIDENING ALTERNATIVE			
CA-ORA-1327	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1328	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1329	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1330	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1338 (includes CA-ORA-1035 through –1039	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1271H	Yes	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1215H	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-1107	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-837	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-838	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-903	No	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-599	Unknown	AR-1, AR-2, AR-3	Potentially significant.
CA-ORA-22 (includes CA-SDI-4282, -4535, -8435, 11703, -11929, -13071)	Yes - listed	AR-1, AR-2, AR-3	Potentially significant.
NO PROJECT ACTION ALTERNATIVES			
No resources affected.	Not applicable.	None.	Not applicable.
Potential for Cumulative Archaeological Resources Impacts			
There is a cumulative adverse impact on archaeological resources as a result of the SOCTIIP build Alternatives and other cumulative projects. Even with the implementation of mitigation measures, these impacts are not substantially mitigated, and the impact is cumulatively adverse. Therefore, SOCTIIP build Alternatives contribute to a cumulative adverse impact related to historic and archaeological resources. The No Action Alternatives have no cumulative impacts on historic and archaeological resources because no action would be taken that would contribute either individually or cumulatively to the loss of these resources in the study area.			

(1) National Register of Historic Places.
(2) The full text of the mitigation measures is provided in Section 4.16 (Affected Environment, Impacts and Mitigation Measures Related to Historic and Archaeological Resources) in the EIS/SEIR.
Source: Greenwood and Associates (2003).

TABLE 7.17-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR ARCHAEOLOGICAL RESOURCES FOR THE SOCTIIP ALTERNATIVES

	NRHP (1) Listed	NRHP Eligible and Not Evaluated	Evaluated Not Eligible	Destroyed	Total Recorded Resources	Mitigation Measures (2)	Significance After Mitigation
FEC-W-I	1	11	6	1	19	AR-1, AR-2, AR-3	Potentially significant.
FEC-W-U	1	11	6	1	19	AR-1, AR-2, AR-3	Potentially significant.
FEC-M-I	1	10	6	1	18	AR-1, AR-2, AR-3	Potentially significant.
FEC-M-U	1	10	6	1	18	AR-1, AR-2, AR-3	Potentially significant.
CC-I	1	7	7	2	17	AR-1, AR-2, AR-3	Potentially significant.
CC-U	1	7	7	1	16	AR-1, AR-2, AR-3	Potentially significant.
CC-ALPV-I	-	6	7	-	13	AR-1, AR-2, AR-3	Potentially significant.
CC-ALPV-U	-	6	7	-	13	AR-1, AR-2, AR-3	Potentially significant.
A7C-ALPV-I	-	6	6	-	12	AR-1, AR-2, AR-3	Potentially significant.
A7C-ALPV-U	-	6	6	-	12	AR-1, AR-2, AR-3	Potentially significant.
A7C-FEC-M-I	1	11	5	1	18	AR-1, AR-2, AR-3	Potentially significant.
A7C-FEC-M-U	1	12	5	1	19	AR-1, AR-2, AR-3	Potentially significant.
AIO	-	2	7	4	13	AR-1, AR-2, AR-3	Potentially significant.
I-5	2	8	-	3	13	AR-1, AR-2, AR-3	Potentially significant.
No Action Alternatives	0	0	0	0	0	None	No Impacts
Potential for Cumulative Archaeological Resources Impacts							

Source: Greenwood and Associates (2003).
Key: I = Initial
U = Ultimate
(1) National Register of Historic Places.
(2) The full text of the mitigation measures is provided in Section 4.16 (Affected Environment, Impacts and Mitigation Measures Related to Historic and Archaeological Resources) in the EIS/SEIR.

TABLE 7.17-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR HISTORIC RESOURCES FOR THE SOCTIIP ALTERNATIVES

Alternative	Total Recorded Resources	Recorded Sites per Mile	NRHP (1) Listed or Eligible	NRHP Appears Eligible	State or Local Desig.	ASHR (2)	Mitigation Measures (3)	Significance After Mitigation
FEC-M	0	0	0	0	0	1	HR-5	Potentially significant.
FEC-W	0	0	0	0	0	1	HR-5	Potentially significant.
CC	8	0.62	1	7	0	6	HR-5	Potentially significant.
CC-ALPV	0	0	0	0	0	0	HR-5	Potentially significant.
A7C-FEC-M	0	0	0	0	0	1	HR-5	Potentially significant.
A7C-ALPV	0	0	0	0	0	0	HR-5	Potentially significant.
AIO	0	--	0	0	0	0	HR-5	Potentially significant.
I-5 Widening	12	--	1	7	4	10	HR-5	Potentially significant.
No Action Alternatives	0	0	0	0	0	0	None.	No impacts.
Potential for Cumulative Historic Resources Impacts								
There is a cumulative adverse impact on historic resources as a result of the SOCTIIP build Alternatives and other cumulative projects. Even with the implementation of mitigation measures, these impacts are not substantially mitigated, and the impact is cumulatively adverse. Therefore, SOCTIIP build Alternatives contribute to a cumulative adverse impact related to historic resources. The No Action Alternatives have no cumulative impacts on historic resources because no action would be taken that would contribute either individually or cumulatively to the loss of these resources in the study area.								

(1) National Register of Historic Places.
(2) Areas of Sensitivity for Historical Resources.
(3) The full text of the mitigation measures is provided in Section 4.16 (Affected Environment, Impacts and Mitigation Measures Related to Historic and Archaeological Resources) in the EIS/SEIR.
Source: Greenwood and Associates (2003).

TABLE 7.18-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTE SITES

Summary of Impacts	Mitigation Measures (1)	CEQA Level of Significance After Mitigation
FAR EAST CORRIDOR-MODIFIED ALTERNATIVE		
Potential construction impacts related to military sites (USTs, other releases).	HM-1, HM-13, HM-14	Below a level of significance.
Potential construction impacts related to past pesticide and herbicide use on agricultural lands.	HM-3, HM-1	Below a level of significance.
Potential for hazardous materials associated with TRW, existing utilities, a waster water treatment facility potential for asbestos in existing structures and a petroleum pipeline.	HM-8, HM-15, HM-16	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7, HM-12, HM-15	Below a level of significance.
FAR EAST CORRIDOR WEST ALTERNATIVE		
Potential construction impacts related to military sites (USTs, other releases).	HM-1, HM-13, HM-14	Below a level of significance.
Potential construction impacts related to past pesticide and herbicide use on agricultural lands.	HM-3, HM-1	Below a level of significance.
Potential for hazardous materials associated with TRW, existing utilities, a waster water treatment facility potential for asbestos in existing structures and a petroleum pipeline.	HM-8, HM-15, HM-16	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7, HM-12, HM-15	Below a level of significance.
CENTRAL CORRIDOR-COMPLETE ALTERNATIVE		
Potential construction impacts related to existing LUST sites along I-5.	HM-1, HM-10	Below a level of significance.
Potential construction impacts related to Prima Deshecha Sanitary Landfill.	HM-11	Below a level of significance.
Potential construction impacts related to land uses with existing USTs.	HM-1, HM-10	Below a level of significance.
Potential for hazardous materials associated with existing automobile service stations, dry cleaners and utilities.	HM-8	Below a level of significance.
Potential impacts during construction related to past pesticide and herbicide use on agricultural lands.	HM-3	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Potential for the presence of hazardous materials in existing road structures.	HM-6	Below a level of significance.

TABLE 7.18-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTE SITES

Summary of Impacts	Mitigation Measures (1)	CEQA Level of Significance After Mitigation
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7	Below a level of significance.
CENTRAL CORRIDOR-AVENIDA LA PATA VARIATION ALTERNATIVE		
Potential construction impacts related to Prima Deshecha Sanitary Landfill.	HM-11	Below a level of significance.
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7	Below a level of significance.
Potential construction impacts related to past pesticide and herbicide use on agricultural lands.	HM-3	Below a level of significance.
ALIGNMENT 7 CORRIDOR-FAR EAST CROSSOVER-MODIFIED ALTERNATIVE		
Potential construction impacts related to military sites (USTs, other releases).	HM-1, HM-13, HM-14	Below a level of significance.
Potential construction impacts related to past pesticide and herbicide use on agricultural lands.	HM-3, HM-1	Below a level of significance.
Potential for hazardous materials associated with TRW, existing utilities, a waster water treatment facility potential for asbestos in existing structures and a petroleum pipeline.	HM-8, HM-16	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7, HM-12, HM-15	Below a level of significance.
ALIGNMENT 7 CORRIDOR-AVENIDA LA PATA VARIATION ALTERNATIVE		
Potential for hazardous materials associated with existing utilities and a petroleum pipeline.	HM-8, HM-16	Below a level of significance.
Potential construction impacts related to Prima Deshecha Landfill.	HM-11	Below a level of significance.
Potential construction impacts related to past pesticide and herbicide use on agricultural lands.	HM-1, HM-3, HM-10	Below a level of significance.
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of	HM-7	Below a level of significance.

TABLE 7.18-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTE SITES

Summary of Impacts	Mitigation Measures (1)	CEQA Level of Significance After Mitigation
hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.		
ARTERIAL IMPROVEMENTS ONLY ALTERNATIVE		
Potential construction impacts related to past pesticide and herbicide use on agricultural lands.	HM-1, HM-3, HM-10	Below a level of significance.
Potential construction impacts related to Prima Deshecha Sanitary Landfill.	HM-11	Below a level of significance.
Potential for previously undocumented abandoned oil wells or test borings.	HM-4	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7	Below a level of significance.
I-5 WIDENING ALTERNATIVE		
Potential construction impacts related to existing LUST sites.	HM-1, HM-10	Below a level of significance.
Potential construction impacts related to land uses with existing USTs.	HM-1, HM-10	Below a level of significance.
Potential for hazardous materials associated with existing automobile service facilities, dry cleaners, a waste water treatment facility, electrical substations and utilities.	HM-8, HM-12, HM-17	Below a level of significance.
Potential for asbestos in existing structures.	HM-5	Below a level of significance.
Potential for aerially deposited lead along existing roads.	HM-2	Below a level of significance.
Potential for the presence of hazardous materials in existing road structures.	HM-6	Below a level of significance.
Construction related hazards including accidental releases, fuel spills, use of hazardous materials, on site use and storage of hazardous wastes and materials, previously undocumented hazardous contamination discovery.	HM-7	Below a level of significance.
NO ACTION ALTERNATIVES – OCP 2000 AND RMV DEVELOPMENT		
No impacts.	None required.	No impacts.
Potential for Cumulative Hazardous Materials and Wastes Impacts		
Because the SOCTIIP build Alternatives and the other cumulative projects will likely not all be under construction simultaneously and because of existing regulations, the SOCTIIP build Alternatives, when considered with these other projects, will not result in a cumulative short term adverse impact related to hazardous materials.		

(1) The full text of the mitigation measures is provided in Section 4.17 (Affected Environment, Impacts and Mitigation measures Related to Hazardous Materials and Hazardous Waste Sites) in the EIS/SEIR.
Source: P&D Consultants (2003).

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
FEC-M ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive views. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Less than significant.
AU1-4 (Refer to Figures 4.18-12 and 4.18-14) [3].			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Oso Parkway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU29 (Refer to Figures 4.18-43, 4.18-44 and 4.18-45).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in Coto de Caza.	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for users of Caspers Park (sensitive viewers).	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for users of Riley Park (sensitive viewers).	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of the regionally outstanding view from Caspers Park.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	No impact.	Not applicable.	Not applicable.
AU34 (Refer to Figures 4.18-62 and 4.18-63).			
Visual Quality	Change in visual quality for motorists (sensitive viewers) on Ortega Highway.	Not adverse. Less than significant.	Less than significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
	Change in visual quality for residents (sensitive viewers) in RMV west of the alignment.	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for residents (sensitive viewers) in RMV east of the alignment.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with County of Orange policies regarding oak trees.	Substantially adverse. Significant.	Significant.
AU35 (Refer to Figures 4.18-64 and 4.18-65)			
Visual Quality	Reduction in visual quality for visitors to the Donna O'Neill Land Conservancy.	Substantially adverse. Significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable	Not applicable
Community Character	Conflict with policies of the Donna O'Neill Land Conservancy regarding the preservation of scenic resources.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of Orange related to oak trees.	Substantially adverse. Significant.	Significant.
AU32 (Refer to Figures 4.18-51 and 4.18-52).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) on the east part of the Talega PC.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents adjacent to a soundwall on the east edge of the Talega PC.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU33 (Refer to Figures 4.18-53 to 4.18-61).			
Visual Quality	Reduction in visual quality for users of San Onofre State Beach, Cristianitos Subunit (sensitive viewers), especially viewers from San Mateo Campground.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for residents (sensitive viewers) in the San Onofre 1 Housing of Camp Pendleton.	Adverse but less than substantial. Less than significant.	Less than significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
	Reduction in visual quality from marine training areas. No adverse impact on ability of MCB Camp Pendleton to train marines.	No adverse impact on ability of MCB Camp Pendleton to train marines. Less than significant.	Less than significant.
	Reduction in visual quality from ocean and land view points for users of San Onofre State Beach, Trestles and Cristianitos Subunits (sensitive viewers).	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents (sensitive viewers) of San Mateo Point Housing of Camp Pendleton.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with policies of San Onofre State Beach regarding blockage of views of the ocean.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of San Diego related to scenic highways.	Substantially adverse. Significant.	Significant.
FEC-W ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Less than significant.
AU1-4 (Refer to Figures 4.18-12 and 4.18-14) [3].			
Visual Quality	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for motorists (sensitive viewers) on Oso Parkway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU29 (Refer to Figures 4.18-43, 4.18-44 and 4.18-45).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in Coto de Caza.	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for users of Caspers Park (sensitive viewers).	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for users of Riley Park (sensitive viewers).	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of the regionally outstanding view from Caspers Park.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	No impact.	Not applicable.	Not applicable.
AU30 (Refer to Figures 4.18-46 and 4.18-47).			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents in RMV.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of regionally outstanding view.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	Conflict with policies of the County of Orange related to oak trees.	Substantially adverse. Significant.	Significant.
AU31-1 (Refer to Figures 4.18-48 and 4.18-50).			
Visual Quality	Reduction in visual quality for visitors to Donna O'Neill Land Conservancy (sensitive viewers).	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with policies of the County of Orange related to oak trees.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the Donna O'Neill Land Conservancy regarding the preservation of scenic resources.	Substantially adverse. Significant.	Significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU32 (Refer to Figures 4.18-51 and 4.18-52).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) on the east part of the Talega PC.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents adjacent to a soundwall on the east edge of the Talega PC.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU33 (Refer to Figures 4.18-53 to 4.18-61).			
Visual Quality	Reduction in visual quality for users of San Onofre State Beach, Cristianitos Subunit (sensitive viewers), especially viewers from San Mateo Campground.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for residents (sensitive viewers) in the San Onofre 1 Housing of Camp Pendleton.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality from marine training areas.	No adverse impact on ability of MCB Camp Pendleton to train marines.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality from ocean and land view points for users of San Onofre State Beach, Trestles and Cristianitos Subunits (sensitive viewers).	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents (sensitive viewers) of San Mateo Point Housing of Camp Pendleton.	Substantially adverse. Significant.	Significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with policies of San Onofre State Beach regarding blockage of views of the ocean.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of San Diego related to scenic highways.	Substantially adverse. Significant.	Significant.
CC ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Not applicable.
AU1-2 (Refer to Figures 4.18-10 and 4.18-14) [3].			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Oso Parkway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU12 (Refer to Figures 4.18-17 to 4.18-20).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in the Mandalay and Pacific Crest developments.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents (sensitive viewers) to the south and east of the San Clemente High School campus, east of I-5 and on residents in the east part of the Marblehead Inland Community.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for motorists on I-5 (sensitive viewers).	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with policies of the City of San Clemente related to scenic corridors and aesthetic resources, specifically hillsides.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of Orange related to scenic highways.	Substantially adverse. Significant.	Significant.
	Physical division of the City of San Clemente.	Substantially adverse. Significant.	Significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU13 (Refer to Figures 4.18-21 and 4.18-22).			
Visual Quality	Changes in the views of residents (sensitive viewers) in San Clemente.	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Not adverse. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU17 (Refer to Figures 4.81-23 and 4.18-24).			
Visual Quality	Reduction in visual quality for non-sensitive viewers.	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU18-1 (Refer to Figrues 4.18-25, 4.18-26 and 4.18-27).			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality of views from the historic O'Neill residence.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of regionally outstanding view.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	Conflict with policies of the County of Orange related to scenic highways.	Substantially adverse. Significant.	Significant.
AU19 (Refer to Figures 4.18-28 and 4.18-29).			
Visual Quality	Reduction in visual quality for residents in San Juan Capistrano west of Avenida La Pata.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No Impact.	Not applicable.	Not applicable.
Community Character	No Impact.	Not applicable.	Not applicable.
AU20 (Refer to Figures 4.18-28 and 4.18-30).			
Visual Quality	Changes in views of non-sensitive viewers.	Not adverse. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
Community Character	No impact.	Not applicable.	Not applicable.
AU21-1 (Refer to Figures 4.18-31 and 4.18-33).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in the west part of the Talega development.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Physical division of the Talega community from the rest of the City of San Clemente.	Substantially adverse. Significant.	Significant.
CC-ALPV ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Less than significant.
AU1-2 (Refer to Figures 4.18-10 and 4.18-14) [3].			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Oso Parkway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU17 (Refer to Figures 4.18-23 and 4.18-24).			
Visual Quality	Reduction in visual quality for viewers from the Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU18-1 (Refer to Figures 4.18-25, 4.18-26 and 4.18-27).			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from the Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality of views from the historic O'Neill residence.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of regionally outstanding view.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	Conflict with policies of the County of Orange related to scenic highways.	Substantially adverse. Significant.	Significant.
AU19 (Refer to Figures 4.18-28 and 4.18-29).			
Visual Quality	Reduction in visual quality for residents in San Juan Capistrano west of Avenida La Pata.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No Impact.	Not applicable.	Not applicable.
Community Character	No Impact.	Not applicable.	Not applicable.
AU20 (Refer to Figures 4.18-28 and 4.18-30).			
Visual Quality	Changes in views of non-sensitive viewers.	Not adverse. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU21-2 (Refer to Figure 4.18-32)			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in the west part of the Talega PC.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Physical division of the Talega community from the rest of the City of San Clemente.	Substantially adverse. Significant.	Significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
A7C-FEC-M ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Less than significant.
AU1-5 (Refer to Figures 4.18-13 and 4.18-14) [3].			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Oso Parkway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU36 (Refer to Figures 4.18-66 and 4.18-67)			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in Coto de Caza.	Not adverse. Less than significant.	Less than significant.
	Minor reduction in visual quality for users of Caspers Park (sensitive viewers).	Not adverse. Less than significant.	Less than significant.
	Minor reduction in visual quality for users of Riley Park (sensitive viewers).	Not adverse. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Minor reduction in view quality of the regionally outstanding view from Caspers Park.	Not adverse. Less than significant.	Less than significant.
	Reduction in view quality of regionally outstanding view E, south of Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	No impact.	Not applicable.	Not applicable.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU37 (Refer to Figures 4.18-68, 4.18-69 and 4.18-70).			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Ortega Highway.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for residents in RMV.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality of views from the historic O'Neill residence.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of regionally outstanding view C from Ortega Highway.	Substantially adverse. Significant.	Significant.
	Minor reduction in view quality of regional outstanding view D from Ortega Highway.	Not adverse. Less than significant.	Less than significant.
	Reduction in view quality of regionally outstanding view B, from north of Ortega Highway, and regionally outstanding view E, from south of Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant.
Community Character	Conflict with County of Orange policies regarding scenic highways.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of Orange related to oak trees.	Substantially adverse. Significant.	Significant.
AU31-2 (Refer to Figures 4.18-49 and 4.18-50).			
Visual Quality	Reduction in visual quality for visitors to Donna O'Neill Land Conservancy (sensitive viewers).	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with policies of the County of Orange related to oak trees.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the Donna O'Neill land Conservancy regarding the preservation of scenic resources.	Substantially adverse. Significant.	Significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU32 (Refer to Figures 4.18-51 and 4.18-52).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) on the east part of the Talega PC.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents adjacent to a soundwall on the east edge of the Talega PC.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU33 (Refer to Figures 4.18-53 to 4.18-61).			
Visual Quality	Reduction in visual quality for users of San Onofre State Beach, Cristianitos Subunit (sensitive viewers), especially viewers from San Mateo Campground.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for residents (sensitive viewers) in the San Onofre 1 Housing of Camp Pendleton.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality from marine training areas.	No adverse impact on ability of MCB Camp Pendleton to train marines. Less than significant.	Less than significant.
	Reduction in visual quality from ocean and land view points for users of San Onofre State Beach, Trestles and Cristianitos Subunits (sensitive viewers).	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for residents (sensitive viewers) of San Mateo Point Housing of Camp Pendleton.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Conflict with policies of San Onofre State Beach regarding blockage of views of the ocean.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of San Diego related to scenic highways.	Substantially adverse. Significant.	Significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
A7C-ALPV ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Less than significant.
AU1-3 (Refer to Figures 4.18-11 and 4.18-14) [3].			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Oso Parkway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for viewers from Ladera Ranch Land Conservancy.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU11-3 (Refer to Figures 4.18-15 and 4.18-16).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in the Talega PC.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Elimination of a large part of the Talega Golf Club that is the recreational centerpiece of the community	Substantially adverse. Significant.	Significant.
	Physical division of the developed and to be developed areas of the Talega community.	Substantially adverse. Significant.	Significant.
AU22 (Refer to Figures 4.18-34 and 4.18-35).			
Visual Quality	Reduction in visual quality for viewers from the Ladera Ranch Land Conservancy.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
Community Character	No impact.	Not applicable.	Not applicable.
AU23-1 (Refer to Figures 4.18-36, 4.18-37, 4.18-38 and 4.18-39).			
Visual Quality	Reduction in visual quality for motorists (sensitive viewers) on Ortega Highway.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for residents in RMV.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in visual quality of views from the historic O'Neill residence.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for viewers from the Ladera Ranch Land Conservancy.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers. .	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	Reduction in view quality of regionally outstanding views C and D from Ortega Highway.	Substantially adverse. Significant.	Significant.
	Reduction in view quality of regionally outstanding view B, from north of Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant.
	Reduction in view quality of regionally outstanding view E, from south of Ortega Highway.	Adverse but less than substantial. Less than significant.	Less than significant. Positive impact because motorists on the toll road would have access to this view which is currently on private property.
Community Character	Conflict with policies of the County of Orange related to scenic highways.	Substantially adverse. Significant.	Significant.
	Conflict with policies of the County of Orange related to oak trees.	Substantially adverse. Significant.	Significant.
AU24 (Refer to Figures 4.18-40 and 4.18-41).			
Visual Quality	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	No impact.	Not applicable.	Not applicable.
AU25 (Refer to Figures 4.18-40 and 4.18-42).			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) in the Talega PC.	Adverse but less than substantial. Less than significant.	Less than significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact on regionally outstanding views.	Not applicable.	Not applicable.
Community Character	Elimination of a large part of the Talega Golf Club that is the recreational centerpiece of the community	Substantially adverse. Significant.	Significant.
	Physical division of the developed and to be developed areas of the Talega community.	Substantially adverse. Significant.	Significant.
AIO ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Not applicable.
AU38 (Refer to Figures 4.18-71 and 4.18-72) [3].			
Visual Quality	Reduction in visual quality for residents (sensitive viewers) near Antonio Parkway and Crown Valley.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for residents (sensitive viewers) near Avenida La Pata and Avenida Pico.	Substantially adverse. Significant.	Significant.
	Reduction in visual quality for non-sensitive viewers.	Adverse but less than substantial. Less than significant.	Less than significant.
View Quality	No impact.	Not applicable.	Not applicable.
Community Character	Conflict with policies of the County of Orange related to scenic highways.	Substantially adverse. Significant.	Significant.
I-5 ALTERNATIVE			
All Assessment Units			
Light and Glare	Increased light and glare in all assessment units.	Substantially adverse. Significant.	Less than significant.
Construction	Short term reduction in visual quality due to vegetation removal, grading, cut/fill and presence of vehicles, machinery and construction materials.	Adverse for sensitive viewers. However, these impacts are considered adverse but less than substantial because they are short term during the construction phase of the project only. Less than significant.	Less than significant.

TABLE 7.19-1
SUMMARY OF SHORT AND LONG TERM IMPACTS BY ASSESSMENT UNIT BEFORE MITIGATION AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION RELATED TO VISUAL RESOURCES

Summary of Short and Long Term Impacts [1]		Significance of Impact Before Mitigation	Significance of Impact After Mitigation [2]
AU40 (Refer to Figures 4.18-73 and 4.18-74) [3].			
Visual Quality	Reduction in visual quality for residents along the alignment related to soundwalls.	Substantially adverse. Significant.	Significant.
View Quality	No impact.	Not applicable.	Not applicable.
Community Character	No Impact.	Not applicable.	Not applicable.
NO ACTION ALTERNATIVES			
All Assessment Units			
Light and Glare	No impact.	Not applicable.	Not applicable.
Construction	No impact.	Not applicable.	Not applicable.
Visual Quality	No impact.	Not applicable.	Not applicable.
View Quality	No impact.	Not applicable.	Not applicable.
Community Character	No Impact.	Not applicable.	Not applicable.
Potential for Cumulative Visual Resources Impacts			
The urbanizing elements of the SOCTIIP build Alternatives in rural areas include the toll or arterial road surfaces, connector ramps and toll plazas. The corridor and AIO Alternatives would, together with other projects in the area, contribute to changing the existing visual character of the rural areas crossed by the Alternatives to a more urban visual character. Therefore, the SOCTIIP build Alternatives, with the exception of the I-5 Alternative, when considered with other cumulative projects in the area, are anticipated to contribute to a cumulative long term adverse impact related to visual resources in the study area.			

[1] Construction impacts are short term and all other impacts are long term.
[2] The full text of the mitigation measures is provided in Section 4.18 (Mitigation Measures Related to Visual Resources). Mitigation measures AS-1 and AS-2 apply to all impacts except light and glare and construction impacts. Mitigation measures AS-3 and AS-4 apply to light and glare impacts.
[3] Figures are provided in Section 4.18.
Source: P&D Consultants (2003).

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
FEC-M Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of waste material.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
FEC-W Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of waste material.	PS-13 and PS13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
CC Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of excavated material.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
Increased Impervious Surfaces: Reduce natural ground surface.	G-1, G-2, G-3 and G-4.	Less than significant.
Extraction of Groundwater, Gas, Oil, and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
CC-ALPV Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of excavated material.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil, and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
A7C-FEC-M Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of waste materials.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
A7C-ALPV Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Significant.
Disposal of Excavated Material: Increased disposal of waste material.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
AIO Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of excavated material.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil, and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
I-5 Alternative		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.
Change in Groundwater Levels: Temporary lowering of groundwater levels.	G1, G2, G3, G4 and G5.	Less than significant.
Disposal of Excavated Material: Increased disposal of excavated material.	PS-13 and PS-13A.	Less than significant.
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: Reduce natural ground surface.	G1, G2, G3, G4 and G5.	Less than significant.
Extraction of Groundwater, Gas, Oil, and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
No Project Alternatives-OCP-2000 and RMV		
Fault Movement: No impact.	None.	Not applicable.
Liquefaction: No impact.	None.	Not applicable.
Landslides: No impact.	None.	Not applicable.
Differential Compaction/Seismic Settlement: No impact.	None.	Not applicable.
Ground Rupture: No impact.	None.	Not applicable.
Ground Shaking: No impact.	None.	Not applicable.
Tsunami: No impact.	None.	Not applicable.
Seiches: No impact.	None.	Not applicable.
Flooding: No impact.	None.	Not applicable.

TABLE 7.21-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR EARTH RESOURCES

Impact	Mitigation Measure (1)	CEQA Significance After Mitigation
Change in Groundwater Levels: No impact.	None.	Not applicable.
Disposal of Excavated Material: No impact.	None.	Not applicable
Percolation of Waste Material: No impact.	None.	Not applicable.
Landslides and Mudflows: No impact.	None.	Not applicable.
Unstable Cut and Fill Slopes: No impact.	None.	Not applicable.
Collapsible and Expansive Soils: No impact.	None.	Not applicable.
Trench Wall Stability: No impact.	None.	Not applicable.
Erosion of Graded Areas: No impact.	None.	Not applicable.
Alteration of Runoff: No impact.	None.	Not applicable.
Unprotected Drainage Ways: No impact.	None.	Not applicable.
Increased Impervious Surfaces: No impact.	None.	Not applicable.
Extraction of Groundwater, Gas, Oil, and Geothermal Energy: No impact.	None.	Not applicable.
Hydrocompaction and Peat Oxidation: No impact.	None.	Not applicable.
Lava Flow: No impact.	None.	Not applicable.
Ash Fall: No impact.	None.	Not applicable.
Potential for Cumulative Earth Resources Impacts		
The SOCTIIP build Alternatives and other cumulative projects have similar impacts related soils and geotechnical conditions. These impacts would be substantially mitigated or avoided for the SOCTIIP and other projects through project mitigation measures and standard design and construction practices. Therefore, because the impacts of the SOCTIIP build Alternatives and other cumulative projects on earth resources would be substantially mitigated or avoided, no cumulative impacts are anticipated.		

(1) The full text of the mitigation measures is provided in Section 4.20 (Affected Environment, Impacts and Mitigation Measures Related to Earth Resources).
Source: GeoPentech (2003).

TABLE 7.22-1
SUMMARY OF ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO MILITARY IMPACTS

Summary of Impacts		Mitigation Measures (1)	CEQA Level of Significance Before Mitigation	CEQA Level of Significance After Mitigation
FEC-W, FEC-M AND A7C-FEC-M ALTERNATIVE				
Special Use Airspace	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	M-1	Significant.	Below a level of significance.
	Long term: No adverse impacts.	No mitigation required.	--	--
Aviation Training Activities	Short term: Construction activities and lighting cause some degradation of low level night flight and night goggle vision training. Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	M-1	Significant.	Below a level of significance.
	Long term: Increased lighting from roadway and vehicles cause some degradation of low level night flight and night goggle vision training. Adverse.	M-4	Significant.	Below a level of significance.
Ground and Amphibious Training	Short term: Construction activities interfere with potential future training routes. These Alternatives will result in the following losses of land available for training during construction. Adverse. 198.3 ha (489.9 ac) - FEC-W-Initial 206.1 ha (509.2 ac) - FEC-W-Ultimate 198.3 ha (489.9 ac) - FEC-M-Initial 206.1 ha (509.2 ac) - FEC-M-Ultimate 198.3 ha (489.9 ac) - A7C-FEC-M-Initial 206.1 ha (509.2 ac) - A7C-FEC-M-Ultimate	M-2	Significant.	Below a level of significance.
	Long term: Permanent loss of land available for training. Adverse. 332.5 ha (821.6 ac) - FEC-W-Initial 335.7 ha (829.6 ac) - FEC-W-Ultimate 332.5 ha (821.7 ac) - FEC-M-Initial 335.4 ha (828.9 ac) - FEC-M-Ultimate	M-5	Significant.	Significant.

TABLE 7.22-1
SUMMARY OF ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO MILITARY IMPACTS

Summary of Impacts		Mitigation Measures (1)	CEQA Level of Significance Before Mitigation	CEQA Level of Significance After Mitigation
	332.5 ha (821.7 ac) - A7C-FEC-M-Initial 335.7 ha (829.6 ac) - A7C-FEC-M-Ultimate			
Land Use	Short term: Loss of land available for training during construction. Adverse. 198.3 ha (489.9 ac) - FEC-W-Initial 206.1 ha (509.2 ac) - FEC-W-Ultimate 198.3 ha (489.9 ac) - FEC-M-Initial 206.1 ha (509.2 ac) - FEC-M-Ultimate 198.3 ha (489.9 ac) - A7C-FEC-M-Initial 206.1 ha (509.2 ac) - A7C-FEC-M-Ultimate	No mitigation identified.	Significant.	Significant.
	Long term: Loss of land available for training or other potential military uses. Adverse. 332.5 ha (821.6 ac) - FEC-W-Initial 335.7 ha (829.6 ac) - FEC-W-Ultimate 332.5 ha (821.7 ac) - FEC-M-Initial 335.4 ha (828.9 ac) - FEC-M-Ultimate 332.5 ha (821.7 ac) - A7C-FEC-M-Initial 335.7 ha (829.6 ac) - A7C-FEC-M-Ultimate	M-5	Significant.	Significant.
Security	Short term: Increased potential for unauthorized access to Base. Adverse.	M-3	Significant.	Below a level of significance.
	Long term: Increased potential for unauthorized access to Base. Adverse.	M-6	Significant.	Below a level of significance.
		CC ALTERNATIVE		
Special Use Airspace	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	M-1	Significant.	Below a level of significance.
Aviation Training Activities	Long term: No impacts.	No mitigation required.	--	--
	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	M-1	Significant.	Below a level of significance

TABLE 7.22-1
SUMMARY OF ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO MILITARY IMPACTS

Summary of Impacts		Mitigation Measures (1)	CEQA Level of Significance Before Mitigation	CEQA Level of Significance After Mitigation
	Long term: No impacts.	No mitigation required.	--	--
Ground and Amphibious Training	Short and long term: No adverse impacts.	No mitigation required.	--	--
Land Use	Short and long term: No adverse impacts.	No mitigation required.	--	--
Security	Short term: Increased potential for unauthorized access to the Base.	M-3	Significant.	Below a level of significance.
	Long term: No impact.	No mitigation required.	--	--
I-5 ALTERNATIVE				
Special Use Airspace	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	M-1	Significant.	Below a level of significance.
	Long term: No impacts.	No mitigation required.	--	Below a level of significance.
Aviation Training Activities	Short term: Potential impact associated with cranes extended to a height of 12.2 meters (40 feet) or more during nighttime hours. Adverse.	M-1	Significant.	Below a level of significance.
	Long term: No impacts.	No mitigation required.	--	--
Ground and Amphibious Training	Short and long term: Permanent loss of 2.4 hectares (5.9 acres) of land for the I-5 Alternative immediately adjacent to I-5. Loss of land available for training. Not adverse.	No mitigation identified.	Not significant.	Below a level of significance.
Land Use	Short and long term: Permanent loss of 2.4 hectares (5.9 acres) of land for the I-5 Alternative immediately adjacent to I-5. Loss of land available for training. Not adverse.	No mitigation identified.	Not significant.	Below a level of significance.

TABLE 7.22-1
SUMMARY OF ADVERSE IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE RELATED TO MILITARY IMPACTS

Summary of Impacts		Mitigation Measures (1)	CEQA Level of Significance Before Mitigation	CEQA Level of Significance After Mitigation
Security	Short term: Increased potential for unauthorized access to Base. Adverse.	M-3	Significant.	Below a level of significance.
	Long term: Increased potential for unauthorized access to Base. Adverse.	M-6	Significant.	Below a level of significance.
A7C-ALPV, CC-ALPV, AIO AND NO ACTION ALTERNATIVES				
Special Use Airspace	None.	None.	No impact.	No impact.
Aviation Training Activities	None.	None.	No impact.	No impact.
Ground and Amphibious Training	None.	None	No impact.	No impact.
Land Use	None.	None.	No impact.	No impact.
Security	None.	None.	No impact.	No impact.
Potential for Cumulative Military Impacts				
Three SOCTIIP corridor Alternatives share a common alignment (the FEC-W, FEC-M and A7C-FEC-M alignments) on the Base and not only reduce or eliminate part of the buffer that currently exists, but each also reduces the land on the Base that would be available for military training or as a buffer between on Base military training activities and off site land uses. The CC Alternatives include widening of a short segment of I-5 adjacent to Camp Pendleton but will not require acquisition of any right-of-way from Camp Pendleton would do not result in new encroachments into Camp Pendleton. The I-5 Alternative would remove a small part of the Base in the northernmost part of SOSB. In summary, these SOCTIIP build Alternatives and other projects near the Base will continue to contribute to cumulative adverse impacts on Camp Pendleton associated with encroachment onto the Base and the reduction in buffer along the Base boundary. These encroachments and reduction in buffer are considered by the DoD and CMC to directly affect the ability of the Corps to most effectively perform its Military Mission at Camp Pendleton.				

(1) The mitigation measures are described in detail in Section 4.21 (Affected Environment, Impacts and Mitigation Measures Related to Military Impacts) in the EIS/SEIR.

Source: P&D Consultants (2003).

TABLE 7.24-1
SUMMARY OF DIRECT ADVERSE AND BENEFICIAL IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PALEONTOLOGICAL RESOURCES

Formation	Paleontological Sensitivity	Potential (1) for Impacts	Mitigation Measures	CEQA Level of Significance After Mitigation	
				Adverse	Beneficial
FAR EAST CORRIDOR-WEST ALTERNATIVE					
Puente Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Santiago Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Sespe Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace and Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
FAR EAST CORRIDOR-MODIFIED ALTERNATIVE					
Williams Formation - Pleasants Sandstone Member	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Silverado Formation	Moderate	Yes	P-1, P-2, P-3	Less than significant	Potentially
Santiago Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Sespe Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace and Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
CENTRAL CORRIDOR-COMPLETE ALTERNATIVE					
Santiago Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Sespe Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Vaqueros Formation[2]	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Topanga Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
San Onofre Breccia	Low	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace and Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially

TABLE 7.24-1
SUMMARY OF DIRECT ADVERSE AND BENEFICIAL IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PALEONTOLOGICAL RESOURCES

Formation	Paleontological Sensitivity	Potential (1) for Impacts	Mitigation Measures	CEQA Level of Significance After Mitigation	
				Adverse	Beneficial
CENTRAL CORRIDOR-AVENIDA LA PATA VARIATION ALTERNATIVE					
Santiago Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Sespe Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Vaqueros Formation[2]	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Topanga Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
San Onofre Breccia	Low	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace and Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
ALIGNMENT 7 CORRIDOR-FAR EAST CROSSOVER-MODIFIED ALTERNATIVE					
Santiago Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Sespe Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace and Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
ALIGNMENT 7 CORRIDOR-AVENIDA LA PATA VARIATION ALTERNATIVE					
Santiago Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Sespe Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
San Onofre Breccia	Low	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace/Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
ARTERIAL IMPROVEMENTS ONLY ALTERNATIVE					
San Onofre Breccia	Low	Yes	P-1, P-2, P-3	Less than significant	Potentially
Topanga Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially

TABLE 7.24-1
SUMMARY OF DIRECT ADVERSE AND BENEFICIAL IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PALEONTOLOGICAL RESOURCES

Formation	Paleontological Sensitivity	Potential (1) for Impacts	Mitigation Measures	CEQA Level of Significance After Mitigation	
				Adverse	Beneficial
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace/Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
I-5 ALTERNATIVE					
Monterey Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Capistrano Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Niguel Formation	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Quaternary Terrace/Older Alluvium	High	Yes	P-1, P-2, P-3	Less than significant	Potentially
Younger Alluvium	Low to No	Yes	P-1, P-2, P-3	Less than significant	Potentially
Landslides	Indeterminate	Yes	P-1, P-2, P-3	Less than significant	Potentially
NO ACTION ALTERNATIVES					
	--	No	None	No impact	None.
Potential for Cumulative Paleontological Resources Impacts					
The destruction of fossils and geologic rock units contributes to a significant cumulative adverse impact because these non-renewable records of ancient life become permanently unavailable. In assessing cumulative impacts, the quantity of native rock and fossils already unavailable for study in Orange County due to existing development was considered in conjunction with proposed cumulative projects in the area. The SOCTIIP build Alternatives, when considered with other cumulative projects in the area, would contribute to a cumulative adverse impact on paleontological resources in the area. However, because the contribution of the SOCTIIP Alternatives to this cumulative impact would be very small and would be partially mitigated, the incremental contribution of the SOCTIIP Alternatives after mitigation would not substantially increase the total cumulative adverse impact on paleontological resources in Orange County.					

(1) Short term adverse impacts to individual formations during construction are:
- The destruction of fossils (non-renewable, limited resources).
- Damage to fossils during grading.
- The destruction of rock units (non-renewable, limited resources) in the study area.
- Loss of contextual data associated with fossils.
- Loss of associations between fossils.

Long term potential indirect adverse impacts to individual formations are associated with the provision of access to currently inaccessible areas of Orange County, thereby increasing human presence in those areas. Increased human presence creates opportunities for increased disturbance to paleontological resources including human-created erosion, increased natural erosion due to human modification of the environment, damage or erosion created by off-road motor vehicle traffic and increased illegal access and disruption to exposed fossil resources adjacent to the build Alternatives by amateur collectors and construction personnel.

(2) Vaqueros Formation may be present in this segment.

Source:SWCA (2003).

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Far East Corridor – Modified (FEC-M) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 21.8 kilometers (km) (13.5 miles (mi)) of the alignment. Adverse.	PS-2 During construction, install high fire risk signs. PS-3 During operation, install high fire risk signs. PS-4 Install emergency call boxes prior to operation. PS-7 During construction, implement fuel modification as determined by the Orange County Fire Authority (OCFA) or Marine Corps Base (MCB) Camp Pendleton Fire Department, as appropriate.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 During construction, maintain access to the OCFA or MCB Camp Pendleton fire road grid, as appropriate. PS-6 During final design, incorporate access to the OCFA or MCB Camp Pendleton fire road grid in the design, as appropriate.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5	Less than significant.
Law Enforcement	The need for non-federal law enforcement service on the corridor segment through MCB Camp Pendleton. Potentially adverse if no non-federal law enforcement is provided.	PS-10 Prior to operation, transfer law enforcement jurisdiction from the federal government to the State of California.	Less than significant.
Solid Waste Disposal	None.	None required.	Not applicable.
Schools	None.	None required.	Not applicable.
Public Services Facilities	None.	None required.	Not applicable.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1 Prior to, during or after construction, relocate or protect utilities in place as approved by utility providers/owners.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	Initial: Temporary loss of use of 1.4 ha (3.4 ac) and permanent acquisition of 0.7 ha (1.7 ac) at the SDG&E Cristianitos substation. Adverse. Ultimate: Temporary loss of use of 1.4 ha (3.4 ac) and permanent acquisition of 1.0 ha (2.5 ac) of the SDG&E Cristianitos Substation. Adverse.	PS-1 Design refinement to avoid or reduce temporary use and/or permanent acquisition of public services and utilities. U-2 Negotiate with utility to determine acceptable action and/or compensation for temporary and permanent loss of property.	Less than significant.
	Temporary loss of use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the SDG&E Talega Substation. Adverse.	PS-1 and U-2.	Less than significant.
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 20.8 ha (51.6 ac) and permanent take of 501.7 sq m (5400 sq ft) for utility structures and 2.2 ha (5.2 ac) permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.
Percolation Ponds	Temporary use (0.7 ha (1.8 ac)) and permanent acquisition (0.4 ha (1.0 ac)) of one percolation pond on MCB Camp Pendleton for an extended detention basis (EDB).	PS-1. U-3 Negotiate, with the Department of the Navy, appropriate action and compensation to reduce the effects of encroachment on MCB Camp Pendleton percolation pond.	Less than significant.
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.
Far East Corridor – West (FEC-W) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 21.2 kilometers (km) (13.2 miles (mi)) of the alignment. Adverse.	PS-2, PS-3, PS-4 and PS-7.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 and PS-6.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Law Enforcement	The need for non-federal law enforcement service on the corridor segment through MCB Camp Pendleton. Potentially adverse if no non-federal law enforcement is provided.	PS-10.	Less than significant.
Solid Waste Disposal	None.	None required.	Not applicable.
Schools	None.	None required.	Not applicable.
Flood Control Facilities	None.	None required.	Not applicable.
Public Services Facilities	None.	None required.	Not applicable.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.
	Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) at the SDG&E Cristianitos substation. Adverse.	PS-1 and U-2.	Less than significant.
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 21.6 ha (53.7 ac) and permanent take of 494.7 sq m (5325 sq ft) for utility structures and 2.1 ha (5.2 ac) permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.
Percolation Ponds	Temporary use of (0.7 ha (1.7 ac)) and permanent acquisition (0.4 ha (1.0 ac)) of one percolation pond on MCB Camp Pendleton for an extended detention basin (EDB).	PS-1 and U-3.	Less than significant.
Emergency Evacuation	None.	None required.	Not applicable.
Central Corridor – Complete (CC) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 15.8 km (9.8 mi) of the alignment. Adverse.	PS-2, PS-3, PS-4 and PS-7.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 and PS-6.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5.	Less than significant.
	Increased response time. Adverse.	PS-8 During final design, coordinate the	Less than

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
		addition of OPTICON or other traffic pre-emption devices with the City of San Clemente.	significant.
Law Enforcement	Short and long term, increased response times. Adverse.	PS-8.	Less than significant.
Solid Waste Disposal	Relocation of part of the existing Prima Deshecha Landfill operations facilities.	U-1 Prior to, during or after construction relocate or protect utilities/facilities in place as approved by utility providers/owners.	Less than significant.
	Long term impacts to Prima Deshecha Landfill with capacity reduced by 2.6 mcm (3.5 mcy) and the Landfill lifespan reduced by 1.9 years. Adverse.	PS-11 Consult with Prima Deshecha engineers to develop and implement measures to minimize capacity and lifespan impacts.	Significant.
	Short term blocked access to Zone 4 proposed landfilling area. Adverse.	PS-12 Provide and maintain access to Zone 4 of the Prima Deshecha Landfill.	Less than significant.
	Ultimate only: Generation and disposal of up to 1.8 mcm (2.4 mcy) of excess soil and rock material. Adverse.	PS-13 Implement alternatives to disposal of excess material in area landfills. PS-13A Excess fill will not be deposited at MCB Camp Pendleton landfills without advance approval from the Base.	Significant.
Schools	Tesoro High School: Permanent acquisition of 0.4 ha (1.0 ac) of property used for landscaping, access road and parking. Adverse.	PS-1. PS-14 Negotiate with school district to determine acceptable action and compensation for permanent loss of facilities.	Less than significant.
	Tesoro High School: Temporary loss of use of 0.8 ha (2.0 ac) (Initial) and temporary use of 1.1 ha (2.8 ac) (Ultimate) of property currently used for landscaping, access road and parking. Adverse.	PS-1. PS-15 Negotiate with school district to determine acceptable action and compensation for temporary loss of facilities.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	San Clemente High School – Permanent acquisition of 2.4 ha (6.0 acres) of property from the ball fields, tennis courts, handball courts and football/track facility.	PS-1 and PS-14.	Significant.
	San Clemente High School – Temporary loss of use of2.8 ha (7.0 ac) of sports facilities. Adverse.	PS-1 and PS-15.	Significant.
	Ole Hanson Elementary School – Permanent acquisition of 0.7 ha (1.7 ac) of paved playground and displacement of existing portable classroom. Adverse.	PS-1 and PS-14.	Significant.
	Ole Hanson Elementary School –Temporary loss of use of 0.8 ha (2.0 ac) of paved play area during construction. Adverse.	PS-1 and PS-15.	Significant.
Public Services Facilities	Temporary loss of use of and permanent acquisition of 0.4 ha (1.0 ac) of San Clemente Post Office. Adverse.	PS-1. PS-16 Negotiate with public facility owner to determine acceptable actions for permanent loss of facilities.	Less than significant.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.
	CWRP Access Road – Initial: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 1.8 ha (4.5 ac) of access road. Ultimate: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 2.0 ha (5.0 ac) of access road. Not adverse because this Alternative includes realignment and replacement of the road before the existing road is disturbed.	PS-1 and U-2.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	Relocation/addition of high voltage electrical towers and large utility poles. Initial: Maximum potential temporary use of 34.5 ha (84.4 ac) and permanent take of 550.5 sq m (5925 sq ft) for utility structures and 2.5 ha (6.2 ac) permanent take for access roads. Ultimate: Maximum potential temporary use of 33.4 ha (82 ac) and permanent take of 599.8 sq m (6,025 sq ft) for utility structures and 2.5 ha (6.2 ac) permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.
Central Corridor – Avenida La Pata Variation (CC-ALPV) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 13.4 km (8.3 mi) of the alignment. Adverse.	PS-2, PS-3, PS-4 and PS-7.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 and PS-6.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5.	Less than significant.
Law Enforcement	None.	None required.	Not applicable.
Solid Waste Disposal Services	Relocation of part of the existing Prima Deshecha Landfill operations facilities.	U-1 Prior to, during or after construction relocate or protect utilities/facilities in place as approved by utility providers/owners.	Less than significant.
	Long term impacts to Prima Deshecha Landfill with capacity reduced by 2.6 mcm (3.5 mcy) and lifespan reduced by 1.9 years. Adverse.	PS-11.	Significant.
	Short term and long term, blocked access to Zone 4 proposed landfilling area. Adverse.	PS-12.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Schools	Tesoro High School: Permanent acquisition of 0.4 ha (1.0 ac) of property used for landscaping, access road and parking. Adverse.	PS-1 and PS-14.	Less than significant.
	Tesoro High School – Initial: Temporary loss of use of 0.8 ha (2.0 ac) of property currently used for landscaping. Ultimate: Temporary loss of use of 1.1 ha (2.8 ac) or property currently used for landscaping, access road and parking. Adverse.	PS-1 and PS-15.	Less than significant.
Public Services Facilities	None.	None required.	Not applicable.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.
	CWRP Access Road – Initial: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 1.8 ha (4.5 ac) of access road. Ultimate: Temporary loss of use of 2.2 ha (5.3 ac) and permanent acquisition of 2.0 ha (5.0 ac) of access road. Not adverse because this Alternative includes realignment and replacement of the road before the existing road is disturbed.	PS-1 and U-2.	Less than significant.
	Relocation/addition of high voltage electrical towers and large utility poles. Initial: Maximum potential temporary use of 10.1 ha (24.3 ac) and permanent take of 267.1 m (2875 ft) for utility structures and 0.8 ha (2.0 ac) permanent take for access roads. Ultimate: Maximum potential temporary use of 31.8 ha (78 ac) and permanent take of 464.5 m (5,000 ft) for utility structures and 2.1 ha (5.2 ac) permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Alignment 7 Corridor – Far East Crossover-Modified (A7C-FEC-M) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 21.9 kilometers (km) (13.6 miles (mi)) of the alignment. Adverse.	PS-2, PS-3, PS-4 and PS-7.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 and PS-6.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5.	Less than significant.
Law Enforcement	The need for non-federal law enforcement service on the corridor segment through MCB Camp Pendleton. Potentially adverse if no non-federal law enforcement is provided.	PS-10.	Less than significant.
Solid Waste Disposal	None.	None required.	Not applicable.
Schools	None.	None required.	Not applicable.
Public Services Facilities	None.	None required.	Not applicable.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.
	Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) at the SDG&E Cristianitos substation. Adverse.	PS-1 and U-2.	Less than significant.
	Temporary loss of use of 0.7 ha (1.8 ac) and permanent acquisition of 0.2 ha (0.4 ac) of land at the SDG&E Substation. Adverse.	PS-1 and U-2.	Less than significant.
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 19.3 ha (47.9 ac) and permanent take of 480.8 m (5175 ft) for utility structures and 3.8 ha (9.4 ac) permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.
Percolation Ponds	Temporary use (1.7 ha (2.7 ac)) and permanent acquisition (0.4 ha (1.0 ac)) of one percolation pond on MCB Camp Pendleton for an extended detention basin (EDB).	PS-1 and U-3.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.
Alignment 7 Corridor – Avenida La Pata Variation (A7C-ALPV) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire along 13.0 km (8.0 mi) of the alignment. Adverse.	PS-2, PS-3, PS-4 and PS-7.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 and PS-6.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5.	Less than significant.
Law Enforcement	None.	None required.	Not applicable.
Solid Waste Disposal	Long term impacts to Prima Deshecha Landfill with capacity reduced by 6.8 mcm (9 mcy) and lifespan reduced by 4.9 years. Adverse.	PS-11.	Significant.
	Short term blocked access within Zone 4 proposed landfilling area. Adverse.	PS-12.	Less than significant.
Schools	Tesoro High School – Initial: Temporary loss of use of 0.7 ha (1.8 ac) of land currently used for landscaping. Ultimate: Temporary loss of use of 1.3 ha (3.2 ac) of land currently used for landscaping. Adverse.	PS-1 and PS-15.	Less than significant.
	Tesoro High School: Permanent acquisition of 0.4 ha (1.0 ac) of property used for landscaping, access road and parking. Adverse.	PS-1 and U-2.	Less than significant.
Public Services Facilities	None.	None required.	Not applicable.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	CWRP – Initial: Temporary loss of use and permanent acquisition of 6.2 ha (15.2 ac) of CWRP. Some existing treatment facilities would be removed. Ultimate: Temporary loss of use and permanent acquisition of 7.1 ha (17.6 ac) of the CWRP. Some existing treatment facilities would be removed. Adverse.	PS-1 and U-2.	Less than significant.
	CWRP Access Road – Initial: Temporary loss of use and permanent acquisition of 1.0 ha (2.6 ac) of access road. Ultimate: Temporary loss of use and permanent acquisition of 1.1 ha (2.7 ac) of the access road. Not adverse because this Alternative includes realignment and replacement of the road before the existing road is disturbed.	U-2.	Less than significant.
	Relocation/addition of high voltage electrical towers and large utility poles. Initial: Maximum potential temporary use of 1.1 ha (2.8 ac) and permanent take of 9.3 m (100 ft) for utility structures. Ultimate: Maximum potential temporary use of 1.7 ha (4.1 ac) and permanent take of 9.3 m (100 ft) for utility structures. There would be no permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.
Arterial Improvements Only (AIO) Alternative			
Fire Protection and Emergency Medical Services	Short and long term increased risk of wildfire. Adverse.	PS-2, PS-3, PS-4 and PS-7.	Less than significant.
	Short and long term blocked access to existing fire road grid. Adverse.	PS-5 and PS-6.	Less than significant.
	Reduced access to medical emergencies during construction. Adverse.	PS-5.	Less than significant.
Law Enforcement	None.	None required.	Not applicable.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Solid Waste Disposal	Relocation of part of the existing Prima Deshecha Landfill operations facilities.	U-1 Prior to, during or after construction relocate or protect utilities/facilities in place as approved by utility providers/owners.	Less than significant.
	Long term impacts to Prima Deshecha Landfill with capacity reduced by 0.2 mcm (0.3 mcy) and lifespan reduced by 0.1 year. Adverse.	PS-11.	Significant.
	Short term and long term, blocked access to Zone 4 proposed landfilling area. Adverse.	PS-12.	Less than significant.
Schools	Las Flores Elementary School - Permanent acquisition of 2.1 ha (5.2 ac) of school property (playing fields). Adverse.	PS-1 and PS-14.	Significant.
	Las Flores Elementary School - Temporary loss of use of 2.5 ha (6.2 ac) of school land. Adverse.	PS-1 and PS-15.	Significant.
	Proposed San Juan Hills High School: Temporary loss of use and permanent acquisition of 0.4 ha (1.0 ac) of land at the school site. Adverse.	PS-1, PS-14 and PS-15.	Less than significant.
Public Services Facilities	None.	None required.	Not applicable.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.
	CWRP Access Road: Temporary loss of use of 0.3 ha (0.6 ac) and permanent acquisition of 0.1 ha (0.22 ac) of the access road. Not adverse because this Alternative includes realignment and replacement of the road before the existing road is disturbed.	PS-1 and U-2.	Less than significant.
	Temporary loss of use of 0.5 ha (1.3 ac) and permanent acquisition of 0.07 ha (0.2 ac) of the SDG&E Antonio Parkway substation. Adverse.	PS-1, U-1 and U-2.	Less than significant.
	Relocation/addition of high voltage electrical towers and large utility poles. Maximum potential temporary use of 36.6 ha (90.4 ac) and permanent take of 747.9 m (8050 ft) for utility structures and 2.1 ha (5.2 ac) permanent take for access roads.	PS-1, U-1 and U-2.	Less than significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.
I-5 Alternative			
Fire Protection and Emergency Medical Services	Increased response time. Adverse.	PS-9 During construction, coordinate ramp closures and detour plans with fire, emergency medical and law enforcement providers.	Less than significant.
Law Enforcement	Short and long term, increased response times. Adverse.	PS-9.	Less than significant.
Solid Waste Disposal	Generation and disposal of up to 4.3 mcm (5.6 mcy) of excess soil and rock material. Adverse.	PS-13 and PS-13A.	Significant.
Schools	Mission Viejo High School – Permanent acquisition 0.6 ha (1.5 ac) including baseball fields, snack bar and bleachers associated with football field/track facility. Adverse.	PS-1 and PS-14.	Significant.
	Mission Viejo High School - Temporary loss of use of 0.7 ha (1.6 ac) of school property (sports areas). Adverse.	PS-1 and PS-15.	Significant.
	Ole Hanson Elementary School – Temporary loss of use and permanent acquisition of 0.5 ha (1.3 ac) hillside landscaping. Adverse.	PS-1, PS-14 and PS-15.	Less than significant.
	Rancho Capistrano School - Temporary loss of use and permanent acquisition of 2.3 ha (5.6 ac) of playing fields. Adverse.	PS-1, PS-14 and PS-15.	Significant.
	San Clemente High School – Temporary loss of use and permanent acquisition of 2.0 ha (5.0 acres) of property from the ball fields, tennis courts, handball courts and the football/track facility. Adverse.	PS-1, PS-14 and PS-15.	Significant.
	Saint George's Episcopal Academy – Temporary loss of use and permanent acquisition of 0.4 ha (1.0 ac) including school building and loss of paved athletic area/parking. Adverse.	PS-1, PS-14 and PS-15.	Significant.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
	San Juan Elementary School – Temporary loss of use and permanent acquisition of 0.5 ha (1.2 ac) including 2 permanent and 2 temporary buildings. Adverse.	PS-1, PS-14 and PS-15.	Significant.
Public Services Facilities	Lake Forest City Hall – Temporary loss of and permanent acquisition of 0.1 ha (0.3 ac) including loss of west end of building with some conference room space. Adverse.	PS-1 and PS-16.	Less than significant.
	Laguna Hills City Hall - Temporary loss of use and permanent acquisition of 0.2 ha (0.5 ac) of City Hall property. Adverse.	PS-1 and PS-16.	Less than significant.
	San Clemente Post Office - Temporary loss of use and permanent acquisition of 1.2 ha (2.8 ac) of post office property. Adverse.	PS-1 and PS-16.	Less than significant.
	Buccheim Fields - Temporary loss of use and permanent acquisition of 1.3 ha (3.3 ac). Adverse.	PS-1 and PS-16.	Significant.
Utilities	Short term, potential damage to utilities or temporary interruption of service during construction. Adverse.	U-1.	Less than significant.
	Temporary loss of use and permanent acquisition of 0.004 ha (0.01 ac) at the SDG&E Laguna Hills substation and the temporary use and permanent acquisition of 0.9 ha (2.2 ac) at the SDG&E Crown Valley substation. Adverse.	PS-1.	Less than significant.
Flood Control Facilities	None.	None required.	Not applicable.
Emergency Evacuation	None.	None required.	Not applicable.
No Action Alternatives			
All public services and utilities	None.	None required.	Not applicable.

TABLE 7.25-1
SUMMARY OF IMPACTS, MITIGATION MEASURES AND CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION FOR PUBLIC SERVICES AND UTILITIES

Parameter	Adverse Impacts Prior to Mitigation	Summary of Mitigation Measures [1]	CEQA Level of Significance After Mitigation
Potential for Cumulative Public Services and Utilities Impacts			
The build Alternatives, after mitigation, would not contribute to cumulative adverse impacts related to wildfires, fire and emergency medical services, law enforcement services or utilities. The build Alternatives, when considered with other cumulative projects in the area, would contribute to cumulative adverse impacts related to solid waste disposal and the reduction of disposal capacity in area landfills, even with mitigation. The build Alternatives, when considered with other cumulative projects in the area, would contribute to a cumulative adverse impact on schools, even with mitigation. Under the SOCTIIP Alternatives, the contribution is related to the acquisition of land from schools for these Alternatives. The CC and I-5 Alternatives, when considered with other cumulative projects in the area, would contribute to a cumulative adverse impact on public services, even with mitigation. Under the CC Alternative, the contribution is related to acquisition of the San Clemente Post Office; under the I-5 Alternative, the contribution is related to the acquisition of part of the property at the Lake Forest City Hall.			

[1] The full text of all the mitigation measures is provided in Section 4.24 (Affected Environment, Impacts and Mitigation Measure Related to Public Services and Utilities). In this table, the mitigation measures are summarized the first time they are cited. All following references show the mitigations measure numbers only.

Source: P&D Consultants (2003).

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
FAR EAST CORRIDOR-MODIFIED ALTERNATIVE			
Tesoro High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
General Thomas F. Riley Wilderness Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air quality: Potential short term adverse impacts, if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Donna O'Neill Land Conservancy	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air quality: Potential short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Talega Community Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Pacific Golf Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Cristianitos Subunit 1	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Potentially significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: Short term access impacts.	R-4.	Not significant.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Vista Bahia Stadium Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente Municipal Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Trestles Subunit 2	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Potentially significant.
	Operational Noise: Design of Alternative results in a less than significant impact.	None.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed South San Clemente Neighborhood Park (east)	No temporary use and permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
MCB Camp Pendleton San Onofre Recreation Beach	No temporary use and permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Surfer Beach Subunit 3	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
FAR EAST CORRIDOR-WEST ALTERNATIVE			
Tesoro High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	No temporary use or permanent acquisition of property.	None.	Not applicable.
General Thomas F. Riley Wilderness Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air quality: Potential short term adverse impacts, if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Donna O'Neill Land Conservancy	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air quality: Potential short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Talega Community Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Pacific Golf Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Cristianitos Subunit 1	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Potentially significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: Short term access impacts.	R-4.	Not significant.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Vista Bahia Stadium Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente Municipal Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Trestles Subunit 2	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Potentially significant.
	Operational Noise: Design of Alternative results in a less than significant impact.	None.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed South San Clemente Neighborhood Park (east)	No temporary use and permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
MCB Camp Pendleton San Onofre Recreation Beach	No temporary use and permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Potentially adverse long term impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Surfer Beach Subunit 3	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
CENTRAL CORRIDOR-COMPLETE ALTERNATIVE			
Tesoro High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
General Thomas F. Riley Wilderness Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Less than significant noise impacts.	None.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Ladera Ranch Open Space	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
San Juan Capistrano Open Space and Trails	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Prima Deshecha Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
San Clemente High School Sports Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Ole Hanson Elementary School Sports Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Significant.
	Operational Noise: Design of this Alternative results in less than significant noise impact.	None.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Verde Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Bonito Canyon Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Talega Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Talega Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Short Term Noise: Adverse construction noise impacts if resource is operational at time of construction.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Shorecliffs Middle School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Marblehead Sports Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente Municipal Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Luis Rey Park	No temporary use or permanent acquisition of property.	No impacts.	None.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Concordia Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente State Beach	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Cristianitos Subunit 1	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Talega Community Park West	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Our Lady of Fatima Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Proposed South San Clemente Neighborhood Park (east)	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed South San Clemente Neighborhood Park (west)	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Concordia Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
CENTRAL CORRIDOR-AVENIDA LA PATA VARIATION ALTERNATIVE			
Tesoro High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
General Thomas F. Riley Wilderness Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Less than significant noise impacts.	None.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	Not applicable.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Ladera Ranch Open Space	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
San Juan Capistrano Open Space and Trails	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Less than significant noise impacts.	None.	Less than significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Proposed Prima Deshecha Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Talega Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Talega Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Short Term Noise: Adverse construction noise impacts if resource is operational at time of construction.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Talega Community Park West	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.
ALIGNMENT 7 CORRIDOR-AVENIDA LA PATA VARIATION ALTERNATIVE			
Tesoro High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
General Thomas F. Riley Wilderness Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Less than significant noise impacts.	None.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Ladera Ranch Open Space	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this	R-2 and R-3.	Less than significant.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Alternative.		
Proposed Prima Deshecha Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Talega Golf Course	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse operational noise impacts.	None proposed.	Significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Proposed Talega Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Short Term Noise: Adverse construction noise impacts if resource is operational at time of construction.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Talega Swim and Athletic Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Talega Community Park West	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.
ALIGNMENT 7 CORRIDOR-FAR EAST CROSSOVER-MODIFIED ALTERNATIVE			
Tesoro High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
General Thomas F. Riley Wilderness Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air quality: Potential short term adverse impacts, if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Donna O'Neill Land Conservancy	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air quality: Potential short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: No impacts.	None.	Not applicable.
Talega Community Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Pacific Golf Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Cristianitos Subunit 1	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Potentially significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: Short term access impacts.	R-4.	Not significant.
	Visual: Long term adverse impacts on visual quality.	AS-1, AS-2, AS-3 and AS-4.	Significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Vista Bahia Stadium Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente Municipal Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Trestles Subunit 2	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Potentially significant.
	Operational Noise: Design of Alternative results in a less than significant impact.	None.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed South San Clemente Neighborhood Park (east)	No temporary use and permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
MCB Camp Pendleton San Onofre Recreation Beach	No temporary use and permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Surfer Beach Subunit 3	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
ARTERIAL IMPROVEMENTS ONLY ALTERNATIVE			
Las Flores Elementary School Sports Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
O'Neill Regional Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Ladera Ranch Open Space	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Proposed Ladera Ranch Open Space	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if open space is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Proposed San Juan Creek Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
San Juan Capistrano Open Space and Trails	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Proposed Prima Deshecha Regional Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: Resource is fragmented by this Alternative.	R-2 and R-3.	Less than significant.
Pacific Golf Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Talega Community Park West	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Vista Del Mar Elementary and Middle School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Short Term Noise: Adverse construction noise impacts if resource is operational at time of construction.	N-1, N-2, N-3 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Talega Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant change to viewshed.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
I-5 ALTERNATIVE			
Cavanaugh Gowdy Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Sycamore Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
La Tierra Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Aegean Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Doria Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Mackenzie Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Mission Viejo High School Sports Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3, and R-4.	Less than significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: Short term air quality impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Linda Vista Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Mission Viejo Golf Course	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse operational noise impacts.	None proposed.	Significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Madrid Fore Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Moulton Ranch Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Granada Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Cabot Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Capistrano Valley High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Rancho Capistrano Recreation Fields (Schuller)	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Northwest Open Space	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if open space is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Serra Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Marbella Golf and Country Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Stonefield Park and Soccer Field	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Serra High School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
San Juan Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Buchheim Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Historic Town Center Archaeological Park	No temporary use or permanent acquisition of property. None.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Descanso Veterans Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Juan Hills Country Club	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Juan Capistrano Open Space	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Las Ramblas Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Via Canon Park	Temporary use or permanent acquisition of property.	R-1, R-2, R-3, and R-4.	Less than significant.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Potential short term adverse impacts if park is operational during construction of this Alternative.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Palisades Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Sunset Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Fragmentation: No impacts.	None.	Not applicable.
Mira Costa Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Shorecliffs Golf Course	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Park at Calle Juarez and Calle Guadalajara	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
San Gorgonio Park	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Proposed Marblehead Sports Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Shorecliffs Middle School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente High School Sports Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Bonito Canyon Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Ole Hanson Elementary Sports Fields	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Significant.
	Operational Noise: Adverse operational noise impacts.	N-7, N-8, N-9 and N-10.	Less than significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Verde Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Our Lady of Fatima Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente Municipal Golf Course	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Clemente State Beach	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
San Luis Rey Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
Concordia Elementary School Sports Fields	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: Adverse operational noise impacts.	None proposed.	Significant.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed Concordia Park	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Proposed South San Clemente Neighborhood Park (west)	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
Proposed South San Clemente Neighborhood Park (east)	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Noise: This proposed resource is not in operation. Future planning for this resource would address noise impacts of this Alternative.	None proposed.	Less than significant.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Cristianitos Subunit 1	Temporary use and permanent acquisition of property.	R-1, R-2, R-3 and R-4.	Less than significant.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
SOSB Trestles Subunit 2	No temporary use or permanent acquisition of property.	None.	Not applicable.
	Operational Noise: No impacts.	None.	Not applicable.
	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
	Air Quality: Short term adverse impacts.	AQ-1, AQ-2 and AQ-3.	Significant.
	Transportation: No impacts.	None.	Not applicable.
	Visual: Less than significant.	None.	Less than significant.
	Fragmentation: No impacts.	None.	Not applicable.
The following recreation resources would be adversely impacted only by construction noise, but are not close enough to the I-5 Alternative to be subject to any other impacts.			
Clarington Park	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
Knotty Pine Park	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
La Paz Middle School Sports Fields	Short Term Noise: Adverse construction noise impacts.	N-1, N-2, N-3 and N-4.	Significant.
El Camino Real Park	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.
Creekside Park	Short Term Noise: Adverse construction noise impacts.	N-1, N-2 and N-4.	Significant.

TABLE 7.26-1
SUMMARY OF IMPACTS, MITIGATION AND LEVEL OF SIGNIFICANCE FOR RECREATION RESOURCES

RECREATION RESOURCE	IMPACTS	APPLICABLE MITIGATION MEASURES (1)	CEQA LEVEL OF SIGNIFICANCE AFTER MITIGATION
NO ACTION ALTERNATIVE (OCP-2000) (2)			
No existing or proposed recreation resources would be directly or indirectly affected by the No Action Alternative (OCP-2000).	No temporary or permanent acquisition of property.	None.	Not applicable.
	Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
NO ACTION ALTERNATIVE (RMV DEVELOPMENT PLAN) (2)			
No existing or proposed recreation resources would be affected by the No Action Alternative (RMV Development Plan).	No temporary or permanent acquisition of property.	None.	Not applicable.
	Noise: No impacts.	None.	Not applicable.
	Air Quality: No impacts.	None.	Not applicable.
	Transportation: No impacts.	None.	Not applicable.
	Visual: No impacts.	None.	Not applicable.
	Fragmentation: No impacts.	None.	Not applicable.
Potential for Cumulative Recreation Resources Impacts			
Because the SOCTIIP build Alternatives do not entail the development of residential or commercial uses, they will not result in impacts related to increased demand for recreation resources. The SOCTIIP build Alternatives would contribute to cumulative impacts related to recreation resources in the study area as a result of direct impacts and/or indirect impacts on recreation resources.			

(1) The full text of these mitigation measures are provided in the following Sections of the EIS/SEIR:
4.6 (Affected Environment, Impacts and Mitigation Measures Related to Noise).
4.7 (Affected Environment, Impacts and Mitigation Measures Related to Air Quality).
4.18 (Affected Environment, Impacts and Mitigation Measures Related to Visual Resources).
4.25 (Affected Environment, Impacts and Mitigation Measures Related to Recreation Resources).

(2) It is uncertain what the effect would be on recreation resources in the study area with regard to accommodating new transportation facilities or alternative methods of transportation. In the absence of any known proposed facilities that would result in either direct or indirect impacts, no impacts are assumed for the No Action Alternatives (OCP-2000).

Source: P&D Consultants (2003).

SECTION 8.0
INVENTORY OF MITIGATION MEASURES

SECTION 8.0
INVENTORY OF MITIGATION MEASURES

This section lists the mitigation measures for the proposed South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) build Alternatives. The applicability of each of these measures to each of the SOCTIIP Alternatives is detailed in tables provided in Section 4.0 (Affected Environment, Environmental Consequences and Mitigation Measures).

8.1 MITIGATION MEASURES RELATED TO TRAFFIC AND CIRCULATION

Measure for Short Term Construction Impacts

Measure CT-1. A Construction Traffic Management Plan (CTMP) will be developed during final design by the TCA or other implementing agency/agencies. The CTMP will include, but not be limited, to:

- Identification of designated haul routes in consultation with the affected local jurisdictions.
- Limiting construction truck and haul traffic to designated routes only.
- Public information and promotional activities including distribution of newsletters, brochures, 24-hour information hot line and press releases. The TCA or the implementing agency/agencies will coordinate with businesses adjacent to the construction areas and prepare plans for improving carpooling, transit and other shared ride services.
- The use of fast track construction techniques to speed construction times.
- Construction scheduling (start/stop times, major materials deliveries, export hauling, etc.) should be scheduled to avoid AM and PM peak traffic periods on adjacent streets to the extent feasible, so that the majority of construction related traffic occurs outside of peak commuting times.
- Identification of alternative routes and routes across the construction areas for emergency and school vehicles developed in coordination with the affected agencies.
- Changeable message boards and alternative route signs should be used.
- Identification of additional traffic enforcement (increased patrols), as needed to ensure public safety in the vicinity of construction areas and detour routes.
- Coordination and implementation of improved/modified signal timing and synchronization at intersections near the construction area and along routes adversely affected by construction traffic.
- Installation of visual barriers or paddle screens around construction areas to help reduce "rubbernecking" by travelers.
- Coordinate with Caltrans and local agencies to ensure that signage for haul routes, detour routes and public information is consistent.

Measures for Long Term Impacts

Table 8-1 identifies mitigation to avoid or substantially reduce the long term direct adverse traffic impacts of the SOCTIIP build Alternatives related to long term direct adverse impacts. For each impacted location, Table 8-1 notes the land use/circulation scenario in which the direct

adverse impact occurs and the share of traffic that is attributed to the SOCTIIP build Alternative under which the impact occurs.

8.2 MITIGATION MEASURES RELATED TO LAND USE

Measure LU-1: Impacts on Existing Land Uses. If a SOCTIIP build Alternative is selected, design refinements to avoid or minimize impacts to existing land uses, related to the temporary use and/or permanent acquisition of property, will be incorporated in the final design of the selected Alternative, where prudent and feasible.

Measure LU-2: TRW Capistrano Test Site. During final design and/or construction, as appropriate, in coordination with TRW and Rancho Mission Viejo (landowner), the facility access road and front gate at the TRW Capistrano Test Site will be relocated to minimize disruption and impacts to TRW security and to maintain access to this facility. During final design and/or construction, as appropriate, the contractor will coordinate with TRW and incorporate design features and security measures, as appropriate, to mitigate construction related impacts to operations at the TRW Capistrano Test Site.

8.3 MITIGATION MEASURES AND COMMITMENTS RELATED TO FARMLAND

Measures for Agricultural Resources on Rancho Mission Viejo

Measure AG-1: Existing Operations on RMV. During final design, and in coordination with RMV and its agricultural leaseholders, the contractor will finalize the realignments of access roads on the ranch to provide cattle and equipment crossings to minimize impediments to cattle movement and routine agricultural operations and normal business activities.

Measure AG-2: Existing Operations on RMV. Prior to the start of any construction activities, any corrals and/or windmills within the disturbance limits of a SOCTIIP build Alternative will be relocated or replaced. In the event that the RMV or the leaseholder does not want the facility relocated, appropriate compensation for the facility will be provided.

Measure for Agricultural Resources on MCB Camp Pendleton

Measure AG-3: Agricultural Operations on Camp Pendleton (San Clemente Ranch). During final design, the contractor will develop a realigned access road for the San Clemente Ranch to ensure all-weather access to the agricultural operations in the leased area on MCB Camp Pendleton. The timing of the construction of this realigned access road will be coordinated with the agricultural operator to ensure that peak operation times are not affected. The realigned road must be completed prior to closure of the existing road.

Commitments Related to Agricultural Resources

In addition to mitigation measures AG-1, AG-2 and AG-3, above, which identify specific actions to avoid, minimize or compensate for potential adverse impacts related to agricultural resources, the following commitment is included in the project alternatives:

Commitment AGC-1: Existing Operations on RMV. Prior to the start of any construction activity, written notification will be provided to agricultural property owners or leaseholders immediately adjacent to the disturbance limits for the SOCTIIP build Alternative. The notification is to indicate the intent to begin construction, including an estimated date for the start of construction. This notification shall be provided at least three, but no more than 12, months prior to the start of construction activity.

8.4 MITIGATION MEASURES RELATED TO SOCIOECONOMICS

Measure SE-1: Avoidance of the Temporary Use and/or Permanent Acquisition of Residential and Non-Residential Property. During final design, the TCA or the implementing agency/agencies will refine the design to the extent feasible based on engineering judgment and design standards to avoid or minimize the permanent acquisition of land currently occupied by residential and non-residential users. In the event that the temporary use or permanent acquisition of this property cannot be avoided through design refinements, other mitigation measures identified for the compensation of temporary and permanent use of residential and non-residential property will apply to the build Alternatives.

Measure SE-2: Property Acquisition and Relocation Assistance. Prior to acquisition of right of way, the TCA or other agencies implementing a SOCTIIP Alternative (because the TCA will not be the implementing agency for the non-corridor Alternatives) will comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in the acquisition of all property within the right-of-way necessary for the proposed project. All displaced households and businesses will be contacted to ensure that each eligible displacee receives their full relocation benefits, including advisory assistance, and that all activities will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources will be available to all eligible displaced persons or businesses without discrimination.

Measure SE-3: Replacement Housing Program. Prior to demolition of any affordable units, the TCA or other implementing agency/agencies shall enter into an agreement with the City of San Clemente to provide replacement affordable housing in compliance with the requirements of the City of San Clemente Housing Element. This shall be accomplished through the provision of replacement housing or the payment of in lieu fees. No other jurisdictions in the displacement area have similar programs. The City of San Clemente's Housing Element requires that three or more dwelling units in the Coastal Zone which are to be demolished or converted, and which are currently occupied by households whose income is 80 percent or below the County median income, be replaced.

8.5 MITIGATION MEASURES RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

Measure R-1: Avoidance of the Temporary Occupancy and/or Permanent Acquisition of Recreation Resources Property. During final design, the TCA or the implementing agency/agencies will refine the design to the extent feasible based on engineering judgment and design standards to avoid or minimize the temporary occupancy during construction and the permanent acquisition of land currently occupied by or proposed for use by recreation resources. In the event that the temporary occupancy or permanent acquisition of this property cannot be avoided through design refinements, other mitigation measures identified for the compensation of temporary and permanent use of recreation resources property will apply to the build Alternatives consistent with Uniform Relocation Assistance.

Measure R-2: Consultation with Owners/Operators of Recreation Resources. In conjunction with measures R-3 and R-4 (compliance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, refer to Section 4.6), the TCA or implementing agency/agencies will consult with the affected property owner/operator of recreation resources temporarily used or permanently acquired by a build Alternative. The purposes of this consultation will be to:

- Identify and implement opportunities to protect recreation resources in place.
- Identify and implement opportunities to replace lost recreation facilities within the existing recreation property.
- Combine compensation and protection/modification of affected recreation resources to comply with the Uniform Relocation Assistance Act and minimize adverse impacts on recreation resources.

Measure R-3: Direct Permanent Impacts (Property Acquisition) at Recreation Resources. Consistent with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or implementing agency/agencies will negotiate with the owner/operator whose recreation facilities will be permanently acquired to determine appropriate action and/or compensation to mitigate for the permanent acquisition.

Measure R-4: Direct Temporary Impacts (Occupancy of Property During Construction) on Recreation Resources. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or implementing agency/agencies will negotiate with the owner/operator whose recreation facilities will be temporarily occupied during construction to determine appropriate action and or compensation to mitigate for the temporary occupancy.

Measure R-5: Impacts on Trails. During final design, the TCA or implementing agency/agencies will provide for crossings of planned lateral Class I and existing and planned Class II bicycle trails, as well as hiking and equestrian trails at master planned locations across the road alignments. These trail crossings will be designed and constructed according to the standards of Caltrans and the applicable local jurisdictions. Construction plans will include

directions to contractors related to minimizing potential disruptions to existing bicycle, riding and hiking trails during construction, as feasible.

8.6 MITIGATION MEASURES RELATED TO NOISE

8.6.1 Mitigation Measures for Construction Noise Impacts

Measure N-1. Local Control of Construction Hours. During construction, the construction contractor will be responsible for limiting hours of construction in a manner consistent with the Orange County Noise Ordinance. This Ordinance prohibits construction and grading activities during the hours of 8:00 PM and 7:00 AM on weekdays and Saturdays, or at any time on Sunday or a Federal holiday in circumstances where the ordinance noise standards may otherwise be exceeded. The impact analysis indicates that the restriction of construction hours would typically occur when pile driving is within 850 m (2,800 ft) of noise sensitive land uses, heavy grading occurs within 1,500 m (5,000 ft) of noise sensitive land uses, and when general construction occurs within 275 m (900 ft) of noise sensitive land uses. However, these distances are only a guide due to the large variation in construction activities. In all cases, compliance with the Orange County Noise Ordinance and/or any applicable City Noise Ordinance is the critical requirement. However, there may be a potential need to conduct nighttime pile driving during construction of corridor Alternatives that have a direct connection with I-5 and the Alternatives which widen I-5. Where proposed pile driving for I-5 requires a lane closure, it is anticipated that this work will need to be performed at night to minimize associated traffic congestion. Nighttime pile driving will only be allowed on review of the construction plans for the corridor Alternatives by the TCA or for the other Alternatives by the implementing agency to confirm that appropriate noise attenuation measures are in place, including appropriate notification of the public.

Measure N-2. Construction Equipment. During construction activities, the construction contractor will ensure that the construction vehicles and equipment shall be maintained properly in tune as required by local ordinances. Additionally, each internal combustion engine used on the job shall be equipped with a "residential" or "hospital" grade muffler.

Measure N-3. Schools Adjacent to Construction Zone. Prior to construction activities in the vicinity of any school, the construction contractor shall be responsible for developing an agreement with Capistrano Unified School District, Camp Pendleton and private school operators as appropriate, that would mitigate construction noise levels in classrooms and playfields at the affected schools to an agreed to construction noise performance standard. Each agreement shall be completed prior to the initiation of any grading on construction within 600 m (2,000 ft) of the school grounds. Examples of noise mitigation options include construction of temporary soundwalls, and limitation of some of the noisiest construction activities to periods when the schools are closed (e.g., the summer for the two public schools).

Measure N-4. Haul Routes. Prior to construction activities, the construction contractor shall establish haul routes that avoid passing through or adjacent to residential and school areas to the extent feasible. In general, truck routes should be directed away from residential areas and onto the I-5 to minimize the construction truck intrusion. If haul routes must pass through residential

areas, haul route traffic should be limited to daytime hours (7 AM to 8 PM). The haul routes will be developed in conjunction with the applicable local jurisdictions.

Measure N-5. Nighttime Demolition. Nighttime demolition activities may occur under the I-5 Alternative. The implementing agency shall ensure that residents within 300 m (1,000 ft) of the demolition area are notified in advance that demolition activities will occur. Qualified residents within 300 m (1,000 ft) requesting relocation during the nighttime demolition activities should be provided with hotel vouchers at a local hotel but outside the demolition impact zone by the implementing agency.

Measure N-6. Noise Complaint Officer. Prior to construction activities, the construction contractor shall identify a Noise Complaint Officer and establish a Noise Complaint hotline. The Noise Complaint Hotline shall be able to receive calls on a 24 hour basis. Any complaints regarding construction shall be forwarded to the Noise Complaint Officer. The Noise Complaint Officer shall record the general description of the complaint, the time the offending noise occurred and the location of the complaint. The Officer shall attempt to measure the noise that generated the complaint within the following 24 hours. If the noise levels exceed those allowed during nighttime construction activities under the local Noise Ordinance, or activities are occurring that are inconsistent with the noise mitigation measures, then the construction contractor shall be responsible for correcting those problems within the following 48 hours. The noise levels measured and any corrective actions shall be recorded with the original complaint form.

8.6.2 Mitigation Measures for Long Term Noise Impacts

Measure N-7. Final Noise Analysis. During final design of the selected Alternative, the TCA or the implementing agency/agencies will prepare a final noise analysis based on the detailed and finalized design developed during final design for the selected Alternative. Feasibility considerations for each sound barrier must meet FHWA/Caltrans criteria including a minimum of 5 dB of noise reduction at the impacted receiver. Additional feasibility considerations are (1) topography, (2) access requirements for driveways, ramps, etc; (3) the presence of cross streets, (4) other noise sources in the area and (5) safety considerations. The TCA or the implementing agency/agencies will finalize noise mitigation requirements for the selected Alternative and coordinate design with the local agency. As appropriate, the Final Noise Assessment Technical Report and the sound barrier/berm height recommended in the Final Noise Assessment Technical Report will serve as a guideline in determining the final barrier height requirements. Other pertinent information from the Final Noise Assessment Technical Report will be incorporated into final design as appropriate. The Final Noise Assessment Technical Report will provide specific recommendations that will then be incorporated into the Construction documentation (i.e. final design) for building purposes.

Measure N-8. Long Term Noise Impacts. During construction, the TCA or the implementing agency/agencies shall implement permanent sound barriers, including walls, berms or combinations of walls and berms. The sound barrier and/or supplemental berm must provide a minimum of 5 dB of noise reduction at the impacted receiver as refined during final design. The locations of these proposed sound barrier/berms are shown on Figures by Alternative in

Appendix K. The construction contractor will be responsible for constructing the sound barrier/berm for the selected Alternative and as refined during final design

8.6.3 Commitments Related to Long Term Noise Impacts

In addition to mitigation measures N-7 and N-8, which identify specific actions to avoid, minimize or compensate for potential long term adverse noise impacts, the following commitments are included in the project alternatives:

Commitment NC-1. Determination of Reasonableness. During final design, the TCA or the implementing agency/agencies shall determine the reasonableness of soundwall/berm placement and consider the life cycle of the sound barrier, the potential environmental impact of the mitigation, opinions of impacted residents, input from the public and local agencies, and social, economic and environmental factors consistent with the FHWA/Caltrans feasibility criteria.

Commitment NC-2. Soundwall/Floodplain. During final design, if the TCA or the implementing agency/agencies locates a soundwall/berm in a floodplain, the TCA or the implementing agency/agencies shall prepare an evaluation of the effects of the soundwall on the floodplain in accordance with appropriate guidelines and design manuals. The design and location will be determined to ensure there is no exceedance of the one foot elevation of the base floodplain. Early recognition and analysis of potential problem areas will be made to determine if wall openings or staggered wall openings are viable for those barriers.

8.7 MITIGATION MEASURES RELATED TO AIR QUALITY

8.7.1 Mitigation Measures for Short Term Air Quality Impacts

Measure AQ-1. During construction, contractor specifications shall incorporate directions to contractors to control fugitive dust. Fugitive dust shall be controlled by regular watering, paving construction roads, or other dust preventive measures, as defined in SCAQMD Rule 403.

After clearing, grading, earth moving or excavation the following activities will be performed by the construction contractor:

a. Seeding and watering will be performed until viable vegetation cover is in place in inactive areas.
b. Soil binders will be spread.
c. Areas will be wet down sufficiently to form a crust on the surface. Repeated soakings will be performed as necessary to maintain this crust.

Measure AQ-2. During construction, measures contained in Tables 1 and 2 of SCAQMD Rule 403 will be implemented by the construction contractor. Control of particulate emissions from construction activities is best controlled through the requirements contained in SCAQMD's Rule 403, Tables 1 and 2. Tables 1 and 2 are reproduced here as Figures 4.7-5, 4.7-6 and 4.7-7. The measures contained in these tables are presented as an option to air quality monitoring in Rule 403. Figure 4.7-5 contains measures such as maintaining an adequate moisture content in the

soil, watering grading areas, establishing ground cover in inactive areas and watering unpaved roads. Figures 4.7-6 and 4.7-7 identify additional measures that are applied during high wind conditions. The mitigation measure, therefore, is to require that the measures contained in Tables 1 and 2 of Rule 403 be utilized. This potentially results in a much higher reduction of particulate emissions than if the air monitoring option contained in Rule 403 was employed. The air monitoring option requires monitoring around the project site, and as long as pollutant levels do not exceed threshold limits, no pollutant emission reduction measures are employed. The measure would be triggered prior to the initiation of grading.

Measure AQ-3. All public streets adjacent to the project site shall be swept once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water). This condition would apply to those areas where construction traffic leaves the project site and travels onto public roadways.

Measure AQ-4. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site each trip.

Measure AQ-5. During final design, contractor specifications shall require that contractors implement the following measures:

- Use low emission mobile construction equipment.
- Maintain construction equipment engines by keeping them tuned.
- Use low sulfur fuel for stationary construction equipment. This is required by SCAQMD Rules 431.1 and 431.2.
- Utilize existing power sources (i.e., power poles) when feasible. This measure would minimize the use of higher polluting gas or diesel generators.
- Configure construction parking to minimize traffic interference.
- Minimize obstruction of through-traffic lanes. When feasible, construction should be planned so that lane closures on existing streets are kept to a minimum.
- Schedule construction operations affecting traffic for off-peak hours.
- Develop a traffic plan to minimize traffic flow interference from construction activities (the plan may include advance public notice of routing, use of public transportation and satellite parking areas with a shuttle service).
- Include in construction grading plans a statement that work crews shut off equipment when not in use.
- Support and encourage ridesharing and transit incentives for the construction crew.

Measure AQ-6. During construction, any material deposited onto paved roads due to a major storm event must be removed within 72 hours of the event by the contractor. Additional time is allowed for mudslides or similar events that block traffic over the material. In the event of road closures due to mudslides or other overwhelming accumulations of material, public access should be restricted until all the material is removed.

8.7.2 Mitigation Measures for Long Term Air Quality Impacts

Measure AQ-7. This control measure specifies three "preventive" and one "mitigative" control option(s) that would be mandatory of all unpaved road connections with paved public roads. The four mandatory control options include:

- Paving the last 100 feet from an unpaved roadway connection with a paved road;
- Chemical stabilization of the last 100 feet from an unpaved roadway connection with a paved road at sufficient frequency and concentration to maintain a stabilized surface at all times.
- Installation of dirt removal devices (e.g., tire cleaning device, grizzlies, etc.);
- Cleaning of public paved road surface at any time visible track-out occurs.

8.8 MITIGATION MEASURES RELATED TO FLOODPLAINS, WATERWAYS AND HYDROLOGIC SYSTEMS

Mitigation measures concerning impacts to floodplains, waterways and hydrologic systems are measures WQ-1 to WQ-4. Refer to Section 8.9 (Mitigation Measures Related to Water Quality) for a description of these measures.

8.9 MITIGATION MEASURES RELATED TO WATER QUALITY

WQ-1 Preservation of Adjacent Existing Vegetation. The TCA or other implementing agency/agencies, as appropriate will preserve existing vegetation at areas on the construction site where either no construction activity is planned or where it will occur at a later date. The vegetation will be preserved according to the California Storm Water BMP Municipal Handbook (1993) as listed in the RMP.

WQ-2 Construction Site BMPs. The TCA or other implementing agency/agencies, as appropriate will implement construction site BMPs as appropriate, during construction of the SOCTIIP Alternatives. These BMPs are described in the California Best Management Practice Handbooks for Construction (1993, revision pending), Caltrans, SWMP and Storm Water Quality Handbooks. BMP categories include measures for temporary sediment control, temporary soil stabilization, scheduling, preservation of existing vegetation, conveyance controls, wind control, temporary stream crossings and waste management as well as many other measures which may be implemented during construction of a highway project. These measures are consistent with requirements set forth under the California State Water Resources Control Board (SWRCB) Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 (General Construction Permit), which governs storm water and non-storm water discharges during construction activities, as well as with those requirements set forth in the Caltrans Permit Order No. 99 - 06 - DWQ (CAS 000003). These BMPs are directed at reducing storm runoff pollutants and eliminating non-storm water discharges.

WQ-3 Storm Water Pollution Prevention Plan (SWPPP). Prior to start of soil-disturbing activity at the project site, a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) will be prepared in accordance with and to partially fulfill the General Construction Permit. The

SWPPP will be prepared per the SWPPP and Water Pollution Control Program (WPCP) Preparation Manual, (Storm Water Quality Handbooks, November 2000.) The SWPPP will meet the applicable provisions of Sections 301 and 402 of the CWA by requiring controls of pollutant discharges that utilize best available technology (BAT) which is economically achievable and best conventional pollutant control technology (BCT) to reduce pollutants. The SWPPP will be implemented concurrently with commencement of the soil-disturbing activity. The SWPPP will need to be certified in accordance with the signatory requirements of the General Construction Permit.

WQ-4 Spill Contingency. Emergency planning for highway spills will be addressed by both operational and structural BMPs. The TCA, Caltrans or other implementing agency/agencies, as appropriate, will take primary responsibility for spill clean-up and contingencies during construction and operation of the project, though coordination with other agencies will be necessary.

Operational BMPs include immediate emergency notification through 911 during a spill event. After emergency notification, the following notifications will occur:

- The local fire department and the Orange County Fire Authority will then be notified, and emergency actions (road closures, medical evacuation, cleanup of hazardous materials, etc.) will be taken; if the spill occurs on or affects MCB Camp Pendleton, these authorities will be notified.

- If the spill is above the Reportable Quantity (RQ), the State Office of Emergency Services (800.852.7550) will be contacted and a control number provided. The National Response Center (800.424.8802) will be contacted to comply with Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements. The California Hazardous Material Incident Reporting System (CHMIRS) (916.427.4287) will be notified (assuming the spill volume is more than four liters (two gallons)) and appropriate forms filled out.

Measure WQ-5 Operations, Maintenance and Monitoring Plan. When an alternative is selected for implementation an Operations, Maintenance and Monitoring Plan will be developed in consultation with the appropriate agencies, i.e. Caltrans. Maintenance objectives for project BMPs will be addressed and formalized in the Operation, Maintenance and Monitoring Plan. Caltrans will monitor the BMPs to ensure maintenance objectives are being met. Details of the monitoring will comply with Caltrans Storm Water Policy and requirements of the 401 Certification with Caltrans as the holder of the statewide permit for state highways.

Measure WQ-6 Monitoring of BMPs. For the corridor Alternatives, the TCA will monitor Caltrans' maintenance of the BMPs for five years to assure compliance with maintenance criteria and schedules. The TCA will provide annual reports to the Regional Water Quality Control Boards documenting the maintenance of the BMPs.

8.10 MITIGATION MEASURES RELATED TO WETLANDS AND WATERS OF THE UNITED STATES

Measure WW 1. Prior to construction, the TCA or other implementing agency/agencies shall designate a Project Biologist responsible for overseeing biological monitoring, regulatory compliance, and restoration activities associated with construction of the selected alternative in accordance with the adopted mitigation measures and applicable law.

Measure WW 2. During final design of the project, the Project Biologist shall review the design plans and make recommendations for avoidance and minimization of sensitive biological resources. The TCA or other implementing agency/agencies Environmental and Engineering Staff shall determine the implementation of those recommendations.

Measure WW 3. A Biological Resources Management Plan (BRMP) shall be prepared prior to construction. The BRMP shall provide specific design and implementation features of the biological resources mitigation measures outlined in the resource agency approval documents. Issues during construction and operation to be addressed in the BRMP shall include, but are not limited to, resource avoidance, minimization, and restoration guidelines, performance standards, maintenance criteria, and monitoring requirements. The Draft BRMP shall be submitted to the USFWS, National Marine Fisheries Service (NMFS), CDFG, USACOE, RWQCB, FHWA and Caltrans for review and approval.

The primary goal of the BRMP will be to ensure the long term perpetuation of the existing diversity of habitats through restoration in the project area and adjacent urban interface zones and to prevent offsite or indirect effects. The BRMP shall contain at a minimum the following:

a. Identification of all Environmental Sensitive Areas (ESA). ESAs are defined as sensitive habitats including, but not limited to, areas subject to the jurisdiction of the CDFG, USACOE, and USFWS.

b. Design of protective fencing (i.e., t-bar or yellow rope) around ESAs and the construction staging areas.

c. Locations of trees to be protected as wildlife habitat (roosting sites).

d. For areas that will be restored, the quality of the adjacent habitat will be characterized. This characterization shall include species composition, density, coverage, and presence of nonnatives. This characterization will provide a baseline to compare the success of the restoration. The site preparation plan for each restoration site will include:

   - Sources of plant materials and methods of propagation.

   - Site preparation (clearing, grading, weed eradication, soil amendment, topsoil storage), irrigation, planting (container plantings, seeding), and maintenance (weed control, irrigation system checks, replanting) of restoration areas. Specification of parameters for maintenance and monitoring of restoration areas, including weed control measures,

frequency of field checks, and monitoring reports for temporary disturbance areas within the right-of-way.

- Remedial measures to be taken if performance standards are not met.
- Methods and requirements for monitoring of the restoration efforts.
- Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within restoration areas.

e. Specific measures for the protection of sensitive habitats to be preserved in and adjacent to the right-of-way to ensure that construction does not increase beyond the impacts identified in the EIS/SEIR. These measures will include, but are not limited to, erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements. Details of the erosion, siltation, and dust control mitigation measures will be provided in the Storm Water Pollution Prevention Plan (SWPPP).

Measure WW 4. In conjunction with the development of final plans and specifications for construction, or other activities involving vegetation/habitat removal, the Project Biologist shall review and approve the contractor's map of all sensitive habitats (Environmentally Sensitive Areas) within 152.4 meters (500 feet) of the grading limits on the grading plans. The ESA maps shall be prepared by the construction contractor's qualified biologist and approved by the TCA or other implementing agency/agencies. All ESAs to be avoided and performance standards established by the resource agencies shall be clearly noted on the grading, construction, and landscape plans. Additionally, the landscape plans shall indicate that plant materials be local southern Orange County natives.

Measure WW 5. During grading activities and construction operations, the Project Biologist shall conduct monitoring within and adjacent to sensitive habitats including monitoring of the installation of protective devices (silt fencing, sandbags, fencing, etc.), installation and/or removal of creek crossing fill, construction of access roads, vegetation removal, column installation, falsework installation and removal, and other associated construction activities, as deemed appropriate by the Project Biologist. Biological monitoring shall be conducted to document adherence to habitat avoidance and minimization measures addressed in the project mitigation measure and as listed in the USFWS, CDFG, and USACOE permits/agreements.

Measure WW 6. Final design and construction shall restore the perennial river and stream channels and ephemeral drainages and washes to their original contours upon completion of construction where feasible, with the exclusion of areas of permanent impact.

Measure WW 7. During all construction activities, the Contractor shall ensure that construction equipment or vehicles shall not be stored in areas defined as ESAs, including areas within the jurisdiction of the USACOE and/or CDFG. There shall be no fueling, lubrication, storage, or maintenance of construction equipment within 46 meters (150 feet) of CDFG or USACOE jurisdictional areas. Construction equipment staging/storage shall be located in previously

disturbed or non-native areas to the maximum extent possible.

Measure WW 8. During all construction activities, the Contractor shall ensure that no waste material shall be discharged to any CDFG or USACOE jurisdictional areas. Spoil sites shall not be located within any CDFG or USACOE jurisdictional areas, or in areas where it could be washed into any surface water body.

Measure WW 9. Prior to final design, the Contractor shall prepare the final construction Runoff Management Plan (RMP). The plan shall address the final location of facilities to route and detain corridor runoff for the purpose of maintaining peak flows and flow velocities downstream of the Alignment at existing rates and preventing project pollutants from reaching improved and unimproved downstream drainages. County of Orange Best Management Practices (BMPs) will be included in these runoff facilities of the Alternatives as determined appropriate by the Design Engineer. The final RMP will contain provisions for changes to the plan (e.g., alternative mechanisms plant materials) if necessary during project design and/or construction phases to achieve the stated goals and performance standards at an equal or greater level. The RMP will address issues of detention and settlement basin design for mitigation requirements in relation to water quality. The plan shall be submitted to the Regional Water Quality Control Board (RWQCB), Caltrans, and the Orange County Environmental Management Agency (OCEMA) Environmental Planning Division for review and comment. (RMP, Psomas 2003.)

Measure WW 10. The Contractor shall locate staging areas for construction equipment outside of areas in the jurisdiction of the USACOE or CDFG to minimize impacts to sandy creek benches.

Measure WW 11. Prior to final design, the TCA or implementing agency shall prepare a jurisdictional delineation documenting the Waters of the U.S. and wetlands, CDFG, and CCC jurisdictional impacts for the selected alternative.

Prior to final design, the TCA or implementing agency shall prepare a functional assessment of the wetland mitigation plan according to the tenets of the USACOE Regulatory Guidance Letter 02-2 to assure that the functions and values have been replaced and that no net loss of waters and wetland values occur. Habitat replacement guidelines shall be developed to identify and quantify habitats that will be removed along with the locations where habitats will be restored or relocated to ensure no net loss.

8.11 MITIGATION MEASURES RELATED TO WILDLIFE, FISHERIES AND VEGETATION

Measure WV 1. Prior to construction, the TCA or other implementing agency/agencies shall designate a Project Biologist responsible for overseeing biological monitoring, regulatory compliance, and restoration activities associated with construction of the selected alternative in accordance with the adopted mitigation measures and applicable law.

Measure WV 2. During final design of the project, the TCA or other implementing agencies Project Biologist shall review the design plans and make recommendations for avoidance and

minimization of sensitive biological resources. TCA or other implementing agencies Environmental and Engineering Staff shall determine the implementation of those recommendations.

Measure WV 3. A Biological Resources Management Plan (BRMP) shall be prepared prior to construction. The BRMP shall provide specific design and implementation features of the biological resources mitigation measures outlined in the resource agency approval documents. Issues to be discussed in the BRMP shall include, but are not limited to, resource avoidance, minimization, and restoration guidelines, performance standards, maintenance criteria, and monitoring requirements. The Draft BRMP shall be submitted to the USFWS, National Marine Fisheries Service (NMFS), CDFG, USACOE, RWQCB, FHWA and Caltrans for review and approval.

The primary goal of the BRMP will be to ensure the long-term perpetuation of the existing diversity of habitats in the project area and adjacent urban interface zones. The BRMP shall contain at a minimum the following:

a. Identification of all Environmental Sensitive Areas (ESA). ESA are defined as sensitive habitats including, but not limited to, areas subject to the jurisdiction of the CDFG, USACOE, and USFWS; areas supporting endangered, threatened or rare species; and areas supporting vegetation communities described as sensitive.

b. Design of protective fencing (i.e., t-bar or yellow rope) around ESAs and the construction staging areas.

c. Specific procedures during construction for the protection of sensitive plant, amphibian, reptile, bird, and mammal species, including perimeters around drip line oak trees.

d. Locations of trees to be protected as wildlife habitat (roosting sites).

e. Procedures for topsoil preservation and erosion control.

f. A summary of the type and quantification of habitats to be removed.

g. For areas that will be restored, the quality of the adjacent habitat will be characterized. This characterization shall include species composition, density, coverage, and presence of non-natives. This characterization will provide a baseline to compare the success of the restoration. The site preparation plan for each restoration site will include:

   - Sources of plant materials and methods of propagation.

   - Site preparation (clearing, grading, weed eradication, soil amendment, topsoil storage), irrigation, planting (container plantings, seeding), and maintenance (weed control, irrigation system checks, replanting) of restoration areas. Specification of parameters for maintenance and monitoring of restoration areas, including weed control measures,

frequency of field checks, and monitoring reports for temporary disturbance areas within the project right-of-way.

- Remedial measures to be taken if performance standards are not met.
- Methods and requirements for monitoring of the restoration efforts.
- Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within restoration areas.

h. Specific construction monitoring programs for sensitive species including Coulter's saltbush, intermediate mariposa lily, southern tarplant, many-stemmed dudleya, western spadefoot toad, southwestern pond turtle, two-striped garter snake, and San Diego cactus wren.

i. Specific measures for the protection of sensitive habitats to be preserved within and adjacent to the right-of-way to ensure that construction does not increase the impacts. These measures will include, but are not limited to, erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements. Details of the erosion, siltation, and dust control mitigation measures will be outlined in the Storm Water Pollution Prevention Plan (SWPPP).

j. Provisions for biological monitoring during construction activities to ensure compliance and success of each avoidance and minimization measure. The monitoring procedures will (1) identify specific locations of wildlife habitat and sensitive species to be monitored; (2) identify the frequency of monitoring and monitoring methods (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s); and (4) identify reporting requirements.

Measure WV 4. During grading activities and/or construction operations, the Project Biologist shall conduct monitoring within and adjacent to sensitive habitats including installation of protective devices (silt fencing, sandbags, fencing, etc.), installation and/or removal of creek crossing fill, construction of access roads, vegetation removal, column installation, false work installation and removal, and other associated construction activities, as deemed appropriate by the Project Biologist.

Measure WV 5. During grading activities and construction operations, the Project Biologist shall prepare a monthly biological monitoring letter report summarizing site visits, documenting adherence or violations of required habitat avoidance measures, and listing any necessary remedial measures. The report shall be submitted to the TCA and/or other implementing resource agencies.

Measure WV 6. Prior to the commencement of grading activities or other activities involving vegetation/habitat removal, the Project Biologist shall attend preconstruction meetings with construction foremen, bridge engineers, and the TCA or other implementing agencies to confirm that all environmental conditions are discussed. Monthly, or on an as needed basis, new construction personnel shall complete an educational program. Issues to be covered will include,

but are not limited to, environmental measures for avoiding impacts to sensitive biological resources, ESAs, waste disposal, vehicle transportation routes, seasonal restrictions, fueling/maintenance restrictions, and other relevant topics.

Measure WV 7. In conjunction with final design, the Project Biologist shall work closely with project landscape architects (Contractor) to develop native plant palettes for revegetation areas adjacent to the roadway that abut natural open space and will be implemented by the Contractor. Final landscape design plans, which will be approved by the TCA or other implementing agencies, shall reflect the following and shall be incorporated into the BRMP:

- The landscaping along the corridor in open space (non-urban) areas shall be a mix of native, non-invasive, drought tolerant plant species from the scrub, grassland, and chaparral communities. All plants used shall comply with federal, state, and county laws requiring inspection of infestation. The vendor shall provide certification of inspection from the County of Orange and/or San Diego department of agriculture. The Project Biologist shall also inspect all plants before accepting delivery.

- The landscaping community type installed shall be consistent with the plant communities that occur in the vicinity of the intended landscape area.

- Seeds, cuttings, and potted plants shall be collected from local plant material as appropriate, supplemented by material from native plant nurseries. The seed vendor shall furnish certification that the seed has been tested for purity by a certified seed laboratory and does not contain seed of any non-native, invasive species.

- Native California plant species found in the project area shall be used. Invasive, noxious weed, or non-native species identified on the State of California List of Noxious Weed Species or the California Exotic Pest Plant Council Exotic Pest Plants (CalEPPC) of Greatest Ecological Concern in California List shall not be used in landscaping along open space areas.

- All mulches used shall be free of invasive species seed.

- Landscape areas shall be subject to maintenance during plant establishment (i.e., non-native species removal) that will be directed by the Project Biologist. However, the landscape areas shall not be subject to performance standards and will not be subject to mitigation in the future if construction occurs.

- Temporary low-volume irrigation systems, using reclaimed water (where available), shall be included in the final design of the selected alternative.

Portions of the landscaped areas within the Caltrans maintenance area and adjacent to the roadway may be subject to fuel modification requirements, which may preclude the use of many project-indigenous species. In these instances, plant palettes may contain both the California native plant cultivars which will be purchased and indigenous plant species found in the project area. This is due to the limited number of indigenous plant species included within the Orange

County Fire Authority Fuel Modification Plant List.

Measure WV 8. In conjunction with the development of final plans and specifications for construction, or other activities involving vegetation/habitat removal, the Project Biologist shall review and approve the contractor's map of all sensitive habitats (Environmentally Sensitive Areas, or ESAs) within 152.4 meters (500 feet) of the grading limits on the grading plans. ESAs are defined as sensitive habitats including, but not limited to, scrub; native grassland; riparian communities; and areas subject to the jurisdiction of the CDFG, USACOE, and USFWS. The ESA maps shall be prepared by the construction contractor's qualified biologist and approved by the TCA or other implementing agencies. All ESAs to be avoided and performance standards established by the resource agencies shall be clearly noted on the grading, construction, and landscape plans. Additionally, the landscape plans shall indicate that plant materials shall be local southern Orange County native species.

Measure WV 9. Caltrans procedures shall be followed for the protection of ESAs. These procedures are: (1) no construction access, parking, or storage of equipment or materials will be permitted within marked ESAs or other jurisdictional areas; (2) to the maximum extent practicable, construction access points shall be limited in proximity to protected habitat; (3) waste, dirt, and trash shall not be deposited on protected habitat; (4) vehicle transportation routes shall be confined to the narrowest practicable area in areas adjacent to marked, protected habitats during construction/operations activities, (5) no construction personnel shall be permitted access to these areas except for the purpose of invasive species removal without the Project Biologist's approval, and (6) disposal of trash adjacent to ESAs shall be removed/emptied on a daily basis.

Measure WV 10. Prior to the commencement of grading activities or other activities involving vegetation/habitat removal, the Project Biologist shall field verify that protective fencing (t-bar/yellow rope and silt fencing when construction is upslope from sensitive habitat) has been installed along the disturbance limits. Additionally, the Project Biologist shall verify that all other Caltrans procedures for ESAs, identified and mapped on grading plans, have been installed by the construction contractor. These protective fencings shall be field verified by the Project Biologist on a regular basis.

Measure WV 11. To partially mitigate impacts, the TCA has identified additional habitat preservation and restoration activities in the Upper Chiquita Canyon Conservation Area. The Upper Chiquita Canyon Conservation Area consists of approximately 478.7 hectares (1,182 acres) created by the TCA to mitigate biological impacts resulting from construction of the FTC-N. Of these 478.7 hectares (1,182 acres), 327 credits have been set aside as a mitigation bank for future project impacts. The Conservation Area was originally under substantial threat for development and the resources within the Area have been conserved, but otherwise would have been lost or substantially degraded. In addition, the Upper Chiquita Canyon Conservation Area provides opportunities for preservation activities consisting of additional habitat for oak woodland and sensitive plant species. There are also opportunities for restoration activities on site that would include additional acres of oak woodland, nonwetland drainages, coastal sage scrub, coastal sage scrub/native perennial grassland ecotone, and native perennial grassland habitats. These opportunities for preservation and restoration activities would also serve to

mitigate impacts on sensitive plants for the SOCTIIP Alternatives.

A) Impacts to scrub communities (and all sub-types thereof except floodplain sage scrub) shall be mitigated through the use of scrub mitigation credits in the Upper Chiquita Canyon Conservation Easement area and additional preservation (if necessary). The Upper Chiquita Canyon Conservation Easement area currently contains 327 mitigation credits approved by the USFWS and CDFG. The scrub areas impacted by the selected alternative will be mitigated at a credit to hectare ratio of 1:0.40 (one Upper Chiquita Canyon Conservation Easement mitigation credit for every 0.40 ha impact or one Upper Chiquita Canyon Conservation Easement mitigation credit for every 1.0 ac lost).

B) Any additional scrub areas restored within the Upper Chiquita Canyon Conservation Easement area may be added to the credit total, with the approval of the USFWS, and applied to the mitigation ratio accordingly. The TCA or other implementing agencies and the USFWS shall determine the criteria for the establishment of the new credits for the restored areas pursuant to the Upper Chiquita Canyon Conservation Bank Agreement which was entered into with the USFWS and the CDFG.

C) Any scrub areas that are impacted by the selected alignment and that have not been mitigated by the use of the Upper Chiquita Canyon Conservation Easement mitigation credits (i.e., impact area exceeds mitigation credits available) shall be mitigated through preservation at a ratio of 1:1 (0.4 ha [one ac] for every 0.4 ha [one ac] lost), or other mitigation requirement that is necessary to meet the regulatory standards of an applicable state or federal regulatory program.

Measure WV 12. Impacts to native grasslands shall be mitigated at a 1:1 ratio through either preservation or restoration in designated open space (e.g., Upper Chiquita Canyon Conservation Easement). Should restoration be proposed, the restoration areas shall be located in areas deemed appropriate by the project biologist for native grassland restoration. Restoration areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area. The restoration program for native grassland areas shall be included in the BRMP and shall include the following measures.

- Site analysis for appropriate soils.
- Site preparation specifications based on site analysis, including but not limited to grading, and weeding.
- Specifications for plant and seed material appropriate to the locality of the mitigation site and the timing of restoration activities.
- Specifications for site maintenance to establish the habitats, including but not limited to weeding and temporary irrigation.

Restoration areas shall be considered successful at five years if the following standards are achieved:

- The site does not require substantial maintenance for at least two consecutive years during the monitoring period.

- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.

- Soil at the site exhibits a level of beneficial arbuscular mycorrhizal fungi that is comparable to an appropriate reference site, as demonstrated through soil infestivity potential.

- Absolute percent cover of native species is comparable to the absolute cover of native species at an appropriate reference site within an 80 percent confidence limit.

- An index of species diversity of the restored and/or created habitat areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

Monitoring shall be conducted for five years (or less if site meets success criteria as designated above earlier) to ensure successful establishment of native grassland vegetation within the restored areas. If success standards are not met, remedial measures, hydroseeding, or introduction of container stock shall be implemented as directed by the Project Biologist.

Measure WV 13.

A) TCA will mitigate impacts to coast live oak and elderberry woodland communities by replacing, creating, restoring, or preserving (1) 0.4047 ha (one ac) of the identified resource for every 0.4047 ha (one ac) of the applicable resource impacted by the project, or (2) such other mitigation requirement that is necessary to meet the regulatory standards of an applicable state or federal regulatory program. Preservation and restoration areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area as determined by the Project Biologist.

B) The restoration program shall be detailed with the BRMP. Prior to restoration of these communities, hydrological testing and monitoring of the creation site shall be conducted to determine that sufficient hydrology exists to support the community. If necessary, a temporary irrigation program shall be incorporated into the mitigation design to ensure successful establishment of the community. The RMP will address issues of detention and settlement basin design for mitigation requirements in relation to water quality.

   The following performance standards shall apply for the restoration of elderberry woodland areas. Restoration shall be considered successful if:

   - The site does not require substantial maintenance for at least two consecutive years during the monitoring period.

   - The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.

- Absolute percent cover of native upper and mid canopy species is 70 percent.
- An index of species diversity of the restored areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

For coast live oak woodland, the following standards shall apply:

- The site does not require substantial maintenance and meets the success criteria established for this community for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native upper and mid canopy species is 50 percent, with five percent cover from oak trees.
- An index of species diversity of the restored areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

C) Monitoring shall be conducted for five years (or less if success criteria are met earlier) to ensure successful establishment of the restored areas. If success standards are not met, remedial measures including introduction of additional seed and/or container stock and adjusting of irrigation shall be implemented as directed by the Project Biologist.

Measure WV 14. In conjunction with construction activity, the Contractor shall control dust accumulation on natural vegetation at the source of disturbance by standard dust control measures (Mestre Greve Associates 2003).

Measure WV 15. Prior to final design of the selected alternative, the Project Biologist shall ensure that the location of the proposed wildlife bridges and culvert identified in the NES will provide adequate travel capabilities, contain adequate vegetation cover, have adequate daylight, and have appropriate fencing to encourage animals to use these underpasses. Upon selection of and refinement to, the selected alternative, smaller culverts and bridges that will be necessary to provide drainage and/or avoid impacts to jurisdictional areas shall also be designed, at the direction of the Project Biologist, to promote local and regional wildlife movement.

Measure WV 16. Prior to or in conjunction with the permit of application and/or process, Caltrans (Environmental and Maintenance) and resource agencies are to be given an opportunity for review and approval of the design of wildlife movement bridges, undercrossings, and culverts.

The width and the height of the wildlife bridges specified in this mitigation measure are those provided by Caltrans as minimum standards. This approach is appropriate and such detail can be provided during further discussions and only for the selected project. To demonstrate the

success of this approach, the TCA has monitored seven wildlife undercrossings during the fall and spring of each year since 1999. The wildlife undercrossings are along the Foothill and Eastern Transportation Corridors and consist of bridges as well as large diameter culverts. Methods used to document the presence and diversity of wildlife using the undercrossings include scent stations, spotlight surveys, general scat surveys, and direct observations. The data have shown that there is a considerable amount of wildlife within the study area using the undercrossings. The wildlife observed using the undercrossings includes mountain lions, bobcats, coyotes, gray foxes, and mule deer. This usage demonstrates the overall success of the undercrossings in allowing wildlife continued movement throughout the region. In summary, preliminary results indicate that wildlife is continuing to use the undercrossings along the Toll Roads.

a. Wildlife bridges and culverts shall be designed to provide approaching animals a clear view of the habitat or horizon on the opposite site of the structure. The minimum width at the base of the wildlife bridge or culvert shall be six m (20 ft). The minimum vertical clearance shall be 5.2 m (17 ft) from the floor of the bridge/culvert to the bottom of the structure. No artificial lighting shall be installed or used in or around the bridge/culvert, unless otherwise required to meet Caltrans approval. The ground surface of the wildlife bridges and culverts shall be constructed with a slope ratio of 1:1.5 (V:H).

b. Dirt or natural vegetation substrates, rather than concrete or other human-made material, will be placed along the bottom of the bridges or culverts as reasonably feasible.

c. Vegetation naturally occurring on the side slopes to the entrances to the underpass will not be removed, to the extent feasible. Where natural vegetation at underpass entrances does not occur, is minimal, or has been removed as a result of bridge or culvert construction, vegetation shall be planted along the slopes that match the closest intact native vegetation. Low-lying shrubs and/or small trees native to the area will be planted to encourage wildlife use of the underpass.

d. The appropriate vegetation-type and quantity will be determined by the Project Biologist during construction of the underpass and will consist, at a minimum, of appropriate large shrubs and trees that will achieve at least 1.5 m (five ft) in height at maturity. The replanting will occur during the final stages of underpass construction or immediately following construction in the appropriate season for planting. The planting of vegetation at bridges over drainages shall be compatible with flood control requirements.

e. Materials such as rip-rap will not be used in or around the underpass entrances unless required by hydrology/hydraulic conditions.

Measure WV 17. Chain-link, wire mesh with metal poles, or similar fencing of at least 2.1 m (seven ft) in height will be erected on both sides of the selected alternative from the underpass entrance to a distance of at least 1.0 km (0.62 mi) along the corridor to "funnel" wildlife to the underpass area and to minimize wildlife attempts to cross the roadway surface. Fence height up to three m (10 ft) in height will be used in areas deemed appropriate by the project biologist, TCA or other implementing agencies, USFWS, FHWA and Caltrans.

Wildlife fencing adjacent (100 m/328 ft) to wildlife movement underpasses will be inspected semiannually to identify and repair any gaps or tears in the fence caused by erosion, storm events, vandalism, burrowing animals, or other means that could allow wildlife access onto the roadway surface. TCA or other implementing agencies will be responsible for the wildlife fencing for the first three years of completing the corridor, with Caltrans assuming responsibility thereafter.

Measure WV 18. Prior to operation of the corridor, road signs indicating the potential for deer and mountain lion movement shall be installed where indicated by the Project Biologist, due to the potential for wildlife to circumvent the wildlife fencing.

Measure WV 19. All bridges and culverts in the final design plan will be monitored for a period of three years to document the effectiveness of use by target species. Target species to be evaluated shall be determined by the Project Biologist, specific to each bridge and culvert. Wildlife movement studies will be conducted at each underpass twice each year for at least eight weeks during the periods between March and May and between September and November. The studies will begin during the first full time period (beginning with March or September) occurring after the opening of the corridor. Reports will be prepared and submitted to the TCA or other implementing agencies annually. Based on results of surveys, recommendations to enhance wildlife use of underpasses shall be provided as appropriate (i.e., fencing modification, vegetation enhancement, or clearing, etc.).

Measure WV 20. In conjunction with final design, the TCA or other implementing agencies shall incorporate low-light design features, where feasible, adjacent to the following sensitive wildlife habitats: bridges or culverts within wildlife corridors, and scrub, riparian, and woodland communities. One or more of the following design options shall be used, if feasible, recognizing the constraints of roadway lighting requirements: (1) low-intensity street lamps, (2) low-elevation light poles, or (3) shielding by internal silvering of the globes or external opaque reflectors. Design features shall meet Caltrans approval.

Measure WV 21. During final design, the TCA or other implementing agencies, in coordination with the RMP, shall design, construct, and/or maintain any structure/culvert placed within a stream where sensitive fish species do/may occur such that it does not constitute a barrier to upstream or downstream movement of aquatic life, or cause an avoidance reaction by fish that impedes their upstream or downstream movement. This includes, but is not limited to, the supply of water at an appropriate depth for fish migration.

Measure WV 22. Prior to construction of the selected alternative, focused sensitive plant species surveys shall be conducted to determine the distribution of sensitive plants within the impact area of the selected alternative so appropriate avoidance (for all sensitive plant species), and seed collection and salvage measures (for Coulter's saltbush, intermediate mariposa lily, southern tarplant, and many-stemmed dudleya) can be implemented. This measure will ensure that the biologist obtains the current onsite conditions, just prior to construction, to maximize avoidance. Surveys shall be conducted during the appropriate time of year (i.e., during the flowering period for each species). Locations of sensitive plant species shall be mapped and shown on

construction drawings and identified as ESAs. During final design, temporary access roads will be sited with the approval of the Project Biologist so as to avoid or minimize impacts to sensitive plant populations.

Measure WV 23.

A) During the spring prior to grubbing or grading (or as determined by the Project Biologist), the limits of individual populations of Coulter's saltbush to be impacted shall be flagged and individual plants shall be marked with pin flags to facilitate the locating of individual plants after flowering. Prior to construction, seeds shall be collected from Coulter's saltbush plants from approximately June through October from ripened seed heads, for later propagation, by personnel experienced in collection of native seed and native plant propagation. This seed shall be stored by a certified seed bank. An appropriate site within the upper Chiquita Canyon Conservation Area or other area shall be identified for the seeding of this species by the Project Biologist. The site shall have similar soils, slope, aspect, and microhabitat characteristics as the site with occupied Coulter's saltbush to support this species.

B) Prior to construction, 75 percent of the Coulter's saltbush plants within the area to be impacted shall be translocated to an appropriate site within the Upper Chiquita Canyon Conservation Area or within an appropriate open space dedication area within the region. Prior to the salvage operation, the number of Coulter's saltbush plants to be relocated shall be determined by the Project Biologist. The site can be the same or a different site than is used for the distribution of seed, but shall have similar soils, slope, aspect, and microhabitat characteristics as the site with occupied Coulter's saltbush. A bulldozer or loader shall be used to remove the top 30 cm (one ft) of soil, including all plant material which shall be loaded on flatbed trucks and transported to the receiver site. The Project Biologist shall coordinate all salvaging and relocation effort so that these operations occur in the appropriate season for maximum success.

C) Re-establishment of Coulter's saltbush will be monitored for five years. The survival of relocated plants will be recorded each year. Relocation will be considered successful when the survivorship of the relocated plants has stabilized with a 50 percent survival rate, and establishment of seedlings from the seeded material is documented.

Measure WV 24.

A) Intermediate mariposa lily seed shall be collected from populations to be impacted. Prior to grubbing or grading (or as otherwise determined by the Project Biologist), the limits of individual populations to be impacted shall be flagged and individual plants shall be marked with pin flags to facilitate locating individual plants after flowering. Seed shall be collected in late July or early August from ripened seed heads, for later propagation or hand seeding, by personnel experienced in the collection of native seed and native plant propagation.

B) Seed collection shall be conducted during two successive years and the following three-year program shall be implemented to ensure the likelihood of success. Propagated mariposa lilies typically exhibit a germination rate of 80 percent; this percentage shall be used to

determine the number of seeds to be collected to ensure production of the same number of plants as shall be impacted by construction. The propagated plants shall be grown for two years to allow the bulbs to reach optimal size prior to transplantation. The remaining seed not used for propagation from the first year of seed collection shall be divided in half with one-half hand broadcast during the first year and the remaining one-half hand broadcast the following year.

C) The propagated plants shall be introduced (over the three-year program), using at least a 2:1 ratio, into appropriate habitat in open space dedication areas, or as directed by the Project Biologist. Seeding shall occur in similar areas. Site selection shall be based on the presence of suitable habitat as determined by the Project Biologist. Bulbs from the propagated plants shall be planted at the end of the second growing season. The same program shall be

followed for seed collected during the second year. Planting of bulbs and hand broadcasting of seed shall be performed in September or October.

Measure WV 25.

A) Areas determined to have appropriate hydrology and soil chemistry (salinity) shall be reseeded with seed collected from populations of southern tarplant. Southern tarplant is restricted to saline, vernally mesic areas, often along the margins of estuaries or areas of high salinity. The Project Biologist shall identify candidate areas within open space areas that exhibit suitable conditions for introduction of the tarplant.

B) For one year prior to construction, the TCA or other implementing agencies shall have southern tarplant seed collected by personnel experienced in collection of native seeds. Seed collection shall be conducted during successive years from September through December. One-half of the first years' collected seed shall be hand broadcast at the reintroduction site with the remaining one-half stored in appropriate conditions for introduction the following year. Seed collected during the second season shall be stored for potential later use in the event that success standards are not met following the seeding during years one and two.

C) Because southern tarplant is an annual species, population numbers are expected to naturally fluctuate from year to year depending upon environmental conditions. Reseeded areas shall be monitored for three years following the initial seeding. Establishment shall be considered successful if plant densities during any of the three years of monitoring are comparable to densities of the impacted populations based on sampling quadrants. If established populations do not achieve comparable densities of impacted populations, additional reintroduction sites shall be identified and stored seed, obtained during the collection period, shall be introduced into additional sites over a two-year period (as in the initial reintroduction program described above). The additional sites shall be monitored for three years and shall be considered successful if population numbers at all of the sites achieve densities of impact areas. If established populations have not reached the density threshold following the addition of supplemental sites, further remedial measures shall be implemented as determined appropriate by the Project Biologist.

Measure WV 26.

A) Many-stemmed dudleya caudexes and seed shall be collected from populations to be impacted. Prior to grubbing or grading (or as otherwise determined by the Project Biologist), the limits of individual populations to be impacted shall be flagged and groups of plants shall be marked with pin flags to facilitate the locating of individual plants after flowering. Seed shall be collected in late July or early August from ripened seed heads, for later propagation or hand seeding, by personnel experienced in the collection of native seed and native plant propagation. Twenty-five percent of the seeds collected will be stored with Rancho Santa Ana Botanical Gardens (RSABG) by their standard agreement. The remainder of the seed will be used to establish the dudleya population as described below.

B) Caudexes shall be harvested for later planting, using appropriate screens or mesh and shall be conducted by individuals experienced in the salvage of many-stemmed dudleya. Where possible, caudexes will be salvaged by removing soil blocks containing marked dudleya. Both seed and collected caudexes shall be replanted and established at an appropriate site within an open space dedication area at the direction of the Project Biologist.

C) Monitoring of the established populations shall be conducted for three years. The propagated caudexes shall be introduced (over the three-year program), using at least a 1:1 ratio. Establishment shall be considered successful if planted/seeded populations total 75 percent of the impacted populations and the population demonstrates recruitment of seedlings. If planted/seeded populations do not achieve 75 percent of the impacted populations, additional collection of seed shall be performed and additional caudexes will be propagated. If planted/seeded populations do not achieve 75 percent thresholds, further remedial measures shall be implemented as recommended by the Project Biologist.

Measure WV 27. Before entering or leaving the construction site, all construction equipment shall be inspected for evidence of invasive species and/or their seeds. Should any plants and/or seeds be detected, the equipment will be washed to ensure no invasive species and/or their seeds will be brought into or removed from the site.

Measure WV 28. Prior to construction, substantial populations of invasive plant species identified on the State of California List of Noxious Weed Species and the California Exotic Pest Plant Council Exotic Pest Plants (CalEPPC) of Greatest Ecological Concern in California List adjacent to the grading limits shall be mapped.

Measure WV 29. The Project Biologist shall prepare an invasive species management program to be incorporated into the BRMP. The program shall discuss the invasive species within landscaping and mitigation areas to be eradicated or controlled and eradication methods, which may include mowing, hand removal, or herbicide application. Removal of invasive plant species on the State of California List of Noxious Weed Species with Pest Rating A shall be required, at the direction of the Project Biologist. Eradication, containment, or control of all invasive plant species on the State of California List of Noxious Weed Species with Pest Rating B shall be at the discretion of the Project Biologist. The program shall also address invasive species identified in the California Exotic Pest Plant Council Exotic Pest Plants of Greatest Ecological Concern in

California List and methods for their control. The potential for contribution of funds to such programs as the Arundo Removal Program to assist with removal of giant reed or other species from riparian habitats such as San Juan Creek shall also be addressed. The program shall also discuss monitoring of the landscaped and mitigation areas to ensure invasive species are properly controlled or eradicated. The maintenance of the mitigation sites along the corridor will be under the supervision of the Project Biologist (Executive Order 13112, Feb. 3, 1999).

Measure WV 30. The Project Biologist shall conduct focused nocturnal and diurnal surveys within suitable habitat between February and May (a minimum of one week prior to the onset of construction) to determine the presence or absence of the western spadefoot toad in the impact area. Any western spadefoot toads found within the impact area will be relocated outside the construction area by the Project Biologist. In areas where western spadefoot toads were found, fencing or screening approximately 1.5 m (five ft) in height (with one m (three ft) buried below the surface) will be installed to prevent western spadefoot toads from entering the area after the onset of construction.

Measure WV 31. The Project Biologist shall conduct focused diurnal surveys within suitable habitat between February and May to determine the presence or absence of the southwestern pond turtle in the impact area. Southwestern pond turtles observed prior to and during construction within and adjacent to the project footprint will be relocated outside of the construction area either upstream or downstream from the selected alternative by the Project Biologist. In areas where Southwestern pond turtles are found, fencing or screening approximately 1.5 m (five ft) in height (with 0.2 m [0.5 ft] buried below the surface) will be installed to prevent southwestern pond turtles from entering the area after the onset of construction. Fencing/screening will remain in place from June through August.

Measure WV 32. During grading activities, two-striped garter snakes observed within and adjacent to the impact area will be relocated outside of the construction area either upstream or downstream of the selected alternative by the Project Biologist.

Measure WV 33. To minimize and offset adverse effects of the selected alternative on the San Diego cactus wren, suitable habitat for this species (as determined by the Project Biologist) shall be grubbed from the project footprint area from September to February if feasible (generally outside the breeding season for this species). The Project Biologist shall survey the suitable habitat within the areas to be grubbed one day prior to any vegetation disturbance to determine the location and numbers of San Diego cactus wrens. The Project Biologist will be on-site and present during all suitable habitat clearing and removal activities to minimize the potential for individual San Diego cactus wrens to be wounded or killed during the clearing of habitat.

Measure WV 34. If grubbing activities between February and August (generally within the breeding season for San Diego cactus wren) are unavoidable, the following measures will be implemented:

a. Surveys by the Project Biologist will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of San Diego cactus wrens, nest building activities, egg incubation activities, or brood rearing activities. These

surveys will be conducted within the week prior to the initiation of brushing, grading, or other construction activities. One survey will be conducted the day immediately prior to the initiation of work. The USFWS will be notified in writing seven days prior to the initiation of surveys.

b. If no nest(s), nesting behavior, or brood rearing activities are detected, work may commence. Prior to and during work activities, the Project Biologist will locate any individual San Diego cactus wrens on-site and direct operators to begin in an area away from the birds. The pattern of brushing/grubbing activities will be designed to optimize opportunities for flushed birds to be directed towards the open space areas in the vicinity of the impact area.

c. During construction, no activity will occur within approximately 150 m (500 ft) of active nests.

Measure WV 35.

A) Prior to construction activity, the Project Biologist shall survey the construction limits for the presence of occupied raptor nests and nest burrows (for burrowing owls). Occupied raptor nests/burrows shall be mapped on the construction plans by the Project Biologist. The Project Biologist will visit the nest/burrow site at the beginning of the nesting season to verify the use of the nests/burrows for that particular year.

B) If nesting activity begins at any nest site, then the active nest/burrow(s) will be protected as an ESA until nesting activity has ended to ensure compliance with Section 3503.5 of the CDFG Code. To protect any active nest/burrow sites, the following restrictions on construction are required between February and June (or until nests are no longer active as determined by the Project Biologist): (1) clearing limits will be established a minimum of approximately 150 m (500 ft) in any direction from raptor nests/burrows (or as otherwise determined by the Project Biologist); and (2) access and surveying will not be allowed within approximately 300 m (900 ft) of nests/burrows (or as otherwise determined by the Project Biologist).

Measure WV 36. Prior to construction activity, the Project Biologist shall survey the construction limits for the presence of occupied breeding coyote, bobcat, or mountain lion dens. In the event that an occupied breeding coyote, bobcat, or mountain lion den is located within the impact area, then grading and construction operations shall be redirected temporarily around the den for a distance of approximately 150 m (500 ft) or as otherwise determined by the Project Biologist. The dens shall be resurveyed by the Project Biologist within the last month of the breeding seasons of these species to verify completion of the breeding cycle. Dens shall be removed during the non-breeding season only.

Measure WV 37. During the spring and summer (May through August) prior to the habitat removal, a qualified bat biologist shall survey all potential roosting habitat proposed for removal by the proposed construction. If a roost is found, the animals will be evicted and the resource sealed or removed so the bats cannot return and would be forced to find alternative roost sites. Tree removal shall be conducted between September and November to avoid hibernating bats

(December through February) and maternity season (May through August) if feasible.

Measure WV 38. Impacts to floodplain sage scrub, riparian herb, and other sub-types within the Vernal Pools, Seeps, and Wet Meadows and Marsh plant communities shall be mitigated at a 1:1 ratio or other ratio that compensates for functions and values. Mitigation shall consist of creating the above mentioned community types in the approximate proportions in which they currently exist within the impact area or as otherwise required by the resource agencies. Creation areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area. The creation program for the above areas shall be included in the BRMP and shall include the following measures.

- Site analysis for appropriate soils and hydrology.
- Site preparation specifications based on site analysis, including but not limited to grading, and weeding.
- Soil and plant material salvage from impact areas, as appropriate to the timing of impact and restoration as well as the location of restoration sites.
- Specifications for plant and seed material appropriate to the locality of the mitigation site.
- Specifications for site maintenance to establish the habitats, including but not limited to weeding and temporary irrigation.

Creation areas shall be considered successful if the following standards are achieved:

- The site does not require substantial maintenance for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native species is comparable to the absolute cover of native species at an appropriate reference site within an 80 percent confidence limit.
- An index of species diversity of the restored and/or created habitat areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

Monitoring shall be conducted for five years (or less if success criteria are met as designated above earlier) to ensure successful establishment of hydrophytic vegetation within the restored/created areas by wetland species. If success standards are not met, remedial measures, seeding, or introduction of container stock shall be implemented as directed by the Project Biologist.

Measure WV 39. TCA will mitigate impacts to riparian scrub, woodland, and forest communities by replacing, creating, restoring, or preserving (1) 0.40 ha (one ac) of the identified

resource for every 0.40 ha (one ac) of the applicable resource impacted by the project or other ratio that compensates for functions and values, or (2) such other mitigation requirement that is necessary to meet the regulatory standards of an applicable state or federal regulatory program. Mitigation areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area as determined by the Project Biologist. The restoration program shall be detailed with the BRMP.

Prior to restoration of these communities, hydrological testing and monitoring of the creation site shall be conducted to determine that sufficient hydrology exists to support the community. If necessary, a temporary irrigation program shall be incorporated into the mitigation design to ensure successful establishment of the community.

The following performance standards shall apply for the restoration of these areas (except for southern coast live oak riparian forest). Restoration shall be considered successful if:

- The site does not require substantial maintenance for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native upper and mid canopy species is 70 percent.
- An index of species diversity of the restored areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

For southern coast live oak riparian forest, the following standards shall apply:

- The site does not require substantial maintenance and meets the success criteria established for this community for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native upper and mid canopy species is 50 percent, with five percent cover from oak trees.
- An index of species diversity of the restored areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

Monitoring shall be conducted for a minimum of five years to ensure successful establishment of the restored areas. If success standards are not met, remedial measures including introduction of additional container stock and adjusting of irrigation shall be implemented as directed by the Project Biologist.

Measure WV 40. Impacts to open water shall be mitigated by the creation of wetlands and/or impounded feature to be incorporated into the herbaceous riparian habitat restoration to compensate for values and functions. The open water mitigation areas shall be located at a site determined by the Project Biologist to have hydrology sufficient to support the desired open water feature. Appropriate hydrological and soils testing shall be performed to ensure that the created open water area function properly. Creation of open water areas shall be maintained as part of the herbaceous riparian habitat restoration.

8.12 MITIGATION MEASURES RELATED TO THREATENED AND ENDANGERED SPECIES

Measure TE 1. Prior to construction, the TCA or other implementing agencies shall designate a Project Biologist responsible for overseeing biological monitoring, regulatory compliance, and restoration activities associated with construction of the selected alternative in accordance with the adopted mitigation measures and applicable law.

Measure TE 2. During final design of the project, the Project Biologist shall review the design plans and make recommendations for avoidance and minimization of sensitive biological resources. TCA or other implementing agencies' Environmental and Engineering Staff shall determine the implementation of those recommendations.

Measure TE 3. A Biological Resources Management Plan (BRMP) shall be prepared prior to construction. The BRMP shall provide specific design and implementation features of the biological resources mitigation measures outlined in the resource agency approval documents. Issues to be discussed in the BRMP shall include, but are not limited to, resource avoidance, minimization, and restoration guidelines, performance standards, maintenance criteria, and monitoring requirements. The Draft BRMP shall be submitted to the USFWS, NMFS, CDFG, USACOE, RWQCB, FHWA and Caltrans for review and approval.

The primary goal of the BRMP will be to ensure the long term perpetuation of the existing diversity of habitats in the project area and adjacent urban interface zones and prevent offsite or indirect effects. The BRMP shall contain at a minimum specific construction monitoring programs for thread-leaved brodiaea, arroyo toad, coastal California gnatcatcher, least Bell's vireo, and Pacific pocket mouse.

Measure TE 4. During grading activities and construction operations, the Project Biologist shall prepare a monthly biological monitoring letter report summarizing site visits, documenting adherence or violations of required habitat avoidance measures, and listing any necessary remedial measures. The report shall be submitted to the TCA or other implementing agencies.

Measure TE 5. Chain-link, wire mesh with metal poles, or similar fencing of at least 2.1 m (seven ft) in height will be erected on both sides of the selected alternative from the underpass entrance to a distance of at least 1.0 km (0.62 mi) along the corridor to "funnel" wildlife to the underpass area and to minimize wildlife attempts to cross the roadway surface. Fence height up to three m (10 ft) in height will be used in areas deemed appropriate by the Project Biologist, TCA or other implementing agencies, USFWS, FHWA and Caltrans. In addition, in areas

known to support the arroyo toad, a permanent mesh fence shall be installed at the base of the chain-link fence for at least 1.0 km (0.62 mi) to keep the toads from entering onto the roadway surface.

The width and the height of the wildlife bridges specified in this mitigation measure are those provided by Caltrans as minimum standards. This approach is appropriate and such detail can be provided during further discussions and only for the selected project. To demonstrate the success of this approach, the TCA has monitored seven wildlife undercrossings during the fall and spring of each year since 1999. The wildlife undercrossings are along the Foothill and Eastern Transportation Corridors and consist of bridges as well as large diameter culverts. Methods used to document the presence and diversity of wildlife using the undercrossings include scent stations, spotlight surveys, general scat surveys, and direct observations. The data have shown that there is a considerable amount of wildlife within the study area using the undercrossings. The wildlife observed using the undercrossings includes mountain lions, bobcats, coyotes, gray foxes, and mule deer. This usage demonstrates the overall success of the undercrossings in allowing wildlife continued movement throughout the region. In summary, preliminary results indicate that wildlife is continuing to use the undercrossings along the Toll Roads.

Measure TE 6. Prior to construction of the selected alternative, focused sensitive plant species surveys shall be conducted to determine the distribution of sensitive plants within the impact area of the selected alternative so appropriate avoidance, and seed collection and salvage measures for thread-leaved brodiaea can be implemented. This measure will ensure that the biologist obtains the current onsite conditions, just prior to construction, to maximize avoidance. Surveys shall be conducted from March through May which is the blooming period for this species. Locations of thread-leaved brodiaea species shall be mapped and shown on construction drawings and identified as ESAs. During final design, temporary access roads will be sited with the approval of the Project Biologist so as to avoid or minimize impacts to sensitive plant populations.

Measure TE 7.

A) Prior to construction (i.e., clearing, grubbing or grading), focused surveys for the thread-leaved brodiaea shall be conducted during the flowering period for this species (approximately May through July). The locations of plants identified within the disturbance limits shall be recorded with a Global Positioning System (GPS) unit with sub-meter accuracy. The soils containing thread-leaved brodiaea shall be tested to determine soil texture, and organic matter, and transported to a native plant nursery for germination and propagation.

B) Prior to construction, soil containing thread-leaved brodiaea corms shall be collected from the specific locations where thread-leaved brodiaea plants were observed the prior spring by personnel experienced in the salvage of corms. Areas of soil 0.6 m by one m by 0.6 m (two ft by three ft by two ft) deep or one m by 1.3 m by 0.6 m (three ft by four ft by two ft) deep shall be collected and transported for placement in an appropriate translocation site selected by the Project Biologist. The translocation site shall be located in a conservation area within an open space dedication area within the region and shall have similar soils, aspect, slope, and hydrology to the donor site (i.e., the site where thread-leaved brodiaea will

be collected).

C) Relocation success will be monitored for five years. The number of relocated plants that will emerge in any one year is variable and will depend on seasonal rainfall. Relocation will be considered successful when 10 percent of the relocated population emerges and sets viable seed in any monitoring year. The success criteria may vary as determined by the Project Biologist in consultation with botanists and USFWS staff with recent experience in brodiaea transplantation methodologies in the region.

Measure TE 8. To avoid impacting vernal marsh FEVM-16 and Riverside fairy shrimp from construction activities, this area shall be flagged and mapped. All construction roads and other construction related activities shall be redirected around this feature. The watershed which supplies this marsh shall also be flagged for avoidance and enclosed with silt fencing per the direction of the Project Biologist to ensure that erosion/ground disturbance does not compromise water quality within the pool. Silt fencing shall remain intact for the duration of construction and until all disturbed soils have been stabilized. Following removal of the silt fencing, fiber rolls, or similar erosion control devices shall be placed around the pool to filter incoming runoff and reduce the potential for siltation or water turbidity until all earth moving activities have ceased and landscaping installed. See also RMP for all mitigation measures.

Measure TE 9. During final design, the TCA or other implementing agencies, in coordination with the RMP, shall design, construct, and/or maintain any structure/culvert placed within a stream where endangered or threatened fish do/may occur such that it does not constitute a barrier to upstream or downstream movement of aquatic life, or cause an avoidance reaction by fish that impedes their upstream or downstream movement. This includes, but is not limited to, the supply of water at an appropriate depth for fish migration.

Measure TE 10. An Arroyo Toad Resource Management Plan (ATRMP) will be prepared, incorporated into the BRMP, and monitored by the Project Biologist. The plan shall include measures detailing how the impact area will be surrounded with a silt fence enclosure, from which arroyo toads will be removed and relocated from the construction impact area during the breeding season (when they are detectable by vocalizations) and placed in suitable habitat either upstream or downstream of the selected alternative during construction. The ATRMP will identify areas of collection, suitable areas for temporary storage, and restoration guidelines to be in place prior to release of the toad to their original location. The plan shall be submitted to and approved by the USFWS. The locations of areas known to support arroyo toads shall be identified in the ATRMP and on the ESA maps.

Measure TE 11. Prior to initiating any ground-disturbing activities in occupied/suitable habitats or habitats proximal to suitable or occupied habitats, exclusionary fencing shall be installed around the perimeter of the construction area. Fencing or screening approximately 60 cm (two ft) in height (30 cm [one ft] of which will be buried below the surface) shall be installed to prevent arroyo toads from entering the area after the onset of construction. The fencing will be installed at least 14 days prior to the initiation of work and must be made of a material appropriate to preclude any arroyo toads from entering the construction area. Fencing will be removed each winter during construction and at the end of project construction. Vehicle use will

be restricted within areas known to support populations of the arroyo toad as reflected on the ESA maps.

Measure TE 12.

A) The Project Biologist shall conduct three focused arroyo toad surveys within the fenced construction site for arroyo toads a minimum of 14 nights prior to initiating project construction. If climatic conditions are not appropriate for arroyo toad movement during the surveys, the Project Biologist may attempt to illicit a response from the arroyo toads, during nights with temperatures of 13 °C (55 °F) or greater, by spraying the project area with water to simulate a rain event. During construction, arroyo toads surveys will be performed a minimum of once per week and on all nights where the combination of rain/humidity and temperature would increase the movement of arroyo toads.

B) If arroyo toads are found with the construction side of the exclusionary fencing, arroyo toads will be removed by the Project Biologist and relocated from the construction impact area and placed in suitable habitat either upstream or downstream of the construction area as outlined in the Arroyo Toad Resource Management Plan.

Measure TE 13. The Contractor shall locate staging areas for construction equipment outside of areas within the jurisdiction of the USACOE or CDFG known to support arroyo toad to minimize impacts to sandy creek benches that may provide aestivating habitat for the arroyo toad to avoid taking any individuals.

Measure TE 14. When conducting construction and/or other ground-disturbing activities in arroyo toad-occupied habitats or in adjacent upland areas proximal to known arroyo toad habitats, the Contractor shall cover all grubbing spoils or other grading debris with plastic sheeting to prevent arroyo toads from opportunistically burrowing in these exposed and friable soil piles. This sheeting must be placed on the soil piles before sunset and shall remain on (during nighttime hours) for the duration of the construction/ground disturbing activities. The areas where these measures must be implemented shall be determined by the Project Biologist in coordination with the USFWS. If the sheeting does not remain in place due to unforeseen circumstances, (inclement weather or other disturbances) a biologist will monitor the soil piles for the arroyo toad.

Measure TE 15. The Contractor shall not drive upon construction roads or other roads/surfaces adjacent to arroyo toad occupied habitat after sunset. If the site must be accessed, a biologist permitted to handle arroyo toad must be present in the vehicle to identify any individuals on the road and the vehicle shall not exceed a speed of 16 km per hour (10 mi per hour) within these areas.

Measure TE 16. At the conclusion of construction, the TCA or other implementing agencies shall construct artificial pools and gravel bars within the temporary disturbance areas of creeks that are known to be occupied by arroyo toad. The artificial pools and gravel bars shall provide potential breeding and aestivating habitat for arroyo toad. These areas will be identified and established by the Project Biologist in the BRMP. Because of the natural flooding and scouring

conditions of the creeks within the study area, no maintenance of these areas will be required. The construction of these features shall not preclude required Caltrans bridge maintenance. Plans shall be submitted to USFWS for review and approval prior to implementation.

Measure TE 17. Prior to the arroyo toads' re-establishment to their original locations, specific activities to enhance their habitat and improve their potential for re-occupation will be implemented. These measures include the removal (up to 15 days in advance of the re-establishment), to the extent practicable, of predatory species such as bullfrogs, western mosquito fish, yellow bullheads, bluegill, and additional predatory invertebrates, amphibians, and introduced fish species. Plans shall be submitted to USFWS for review and approval prior to implementation.

Measure TE 18. To minimize and offset adverse effects of the selected alternative on the coastal California gnatcatcher, habitat suitable for this species (as determined by the Project Biologist) shall be grubbed from the project footprint area from September to February if feasible (generally outside the breeding season for these species). The Project Biologist shall survey the suitable habitat within the areas to be grubbed one day prior to any vegetation disturbance to determine the location and numbers of coastal California gnatcatchers. The Project Biologist will be on-site and present during all suitable habitat clearing and removal activities to minimize the potential for individual coastal California gnatcatchers to be wounded or killed during the clearing of habitat.

Measure TE 19. If grubbing activities are unavoidable during the coastal California gnatcatcher breeding season, which is between February and August, the following measures will be implemented:

A. Surveys by the Project Biologist will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of coastal California gnatcatchers, nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of brushing, grading, or other construction activities. One survey will be conducted the day immediately prior to the initiation of work. The USFWS will be notified in writing seven days prior to the initiation of surveys.

B. If no nest(s), nesting behavior, or brood rearing activities are detected, work may commence. Prior to and during work activities, the Project Biologist will locate any individual coastal California gnatcatchers on-site and direct operators to begin in an area away from the birds. The pattern of brushing/grubbing activities will be designed to optimize opportunities for flushed birds to be directed towards the open space areas in the vicinity of the impact area.

C. During construction, no activity will occur within approximately 150 m (500 ft) of active nests.

Measure TE 20. To minimize and offset adverse effects of the selected alternative on the least Bell's vireo, suitable habitat for this species, as determined by the Project Biologist, shall be grubbed from the impact area from 16 September to 14 March (generally outside the breeding

season for this species).

Measure TE 21. If grubbing activities between 15 March and 15 September (generally within the breeding season for the least Bell's vireo) are unavoidable, the following contingency measures will be implemented:

a. Surveys by the Project Biologist will be conducted a minimum of three times on separate days after the initiation of the nesting season to determine the presence of least Bell's vireos, nest building activities, egg incubation activities, or brood rearing activities. These surveys will be conducted within the week prior to the initiation of brushing, grading, or other construction activities. One survey will be conducted the day immediately prior to the initiation of work. The USFWS will be notified in writing prior to the initiation of surveys.

b. If no nest(s), nesting behavior, or brood rearing activities are detected, work may commence. Prior to and during work activities, the Project Biologist will locate any individual least Bell's vireos on-site and direct operators to begin in an area away from the birds. The pattern of brushing/grubbing activities will be designed to optimize opportunities for flushed birds to be directed towards the open space areas in the vicinity of the impact area.

c. During construction, no activity will occur within approximately 150 m (500 ft) of active nests.

Measure TE 22.

A) To minimize indirect disturbance of nesting least Bell's vireos, the Contractor will not engage in any construction activities within 61 m (200 ft) of occupied least Bell's vireo habitat between the hours of 0600 and 1100 every day during the peak nesting period of 1 April to 15 July of any given calendar year if said construction activities result in noise readings greater than 60 dBA measured at the edge of the territory of the vireo in the area.

B) For construction, temporary or permanent noise barriers may be installed under the direction of the Project Biologist and USFWS to reduce noise levels. The Project Biologist shall be responsible for monitoring the noise level.

C) The Project Biologist shall be responsible for all noise monitoring reports which shall include, at a minimum, (1) baseline noise measurements at known least Bell's vireo nesting sites within riparian communities within the impacts area, prior to construction, (2) the effect construction noise has on nesting pairs in the vicinity of construction, (3) baseline noise measurements at known nesting adjacent to the alignment, prior to traffic, and (4) the effect traffic noise has on nesting pairs in the vicinity of the selected alignment. These reports will be submitted to the TCA or other implementing agencies.

Measure TE 23. During final project design, an undercrossing shall be provided in the vicinity of the San Mateo North population of the Pacific pocket mouse for any alternative selected that occurs within this area. The undercrossing shall allow for potential movement of Pacific pocket mice under the alignment. The exact placement and design of the undercrossing shall be

determined by the Project Biologist, in consultation with MCB Camp Pendleton and the USFWS.

Measure TE 24. Prior to the initiation of construction in areas within or proximal to known sites occupied by the Pacific pocket mouse, a Pacific Pocket Mouse Resource Management Plan shall be prepared and submitted to the USFWS for review and approval and incorporated into the BRMP. This plan shall identify the strategies available for minimizing impacts and measures to restore impacted suitable habitat.

Measure TE 25. To partially mitigate impacts, the TCA has identified additional habitat preservation and restoration activities in the Upper Chiquita Canyon Conservation Area. The Upper Chiquita Canyon Conservation Area consists of approximately 478.7 ha (1,182 ac) created by the TCA to mitigate biological impacts resulting from construction of the FTC-N. Of these 478.7 ha (1,182 ac), 327 credits have been set aside as a mitigation bank for future project impacts. The Conservation Area was originally under substantial threat for development and the resources within the Area have been conserved, but otherwise would have been lost or substantially degraded. In addition, the Upper Chiquita Canyon Conservation Area provides opportunities for preservation activities consisting of additional habitat for oak woodland and sensitive plant species. There are also opportunities for restoration activities on site that would include additional acres of oak woodland, nonwetland drainages, coastal sage scrub, coastal sage scrub/native perennial grassland ecotone, and native perennial grassland habitats. These opportunities for preservation and restoration activities would also serve to mitigate impacts on sensitive plants for the SOCTIIP Alternatives.

A) Impacts to scrub communities (and all sub-types thereof except floodplain sage scrub) shall be mitigated through the use of scrub mitigation credits in the Upper Chiquita Canyon Conservation Easement area and additional preservation (if necessary). The Upper Chiquita Canyon Conservation Easement area currently contains 327 mitigation credits approved by the USFWS and CDFG. The scrub areas impacted by the selected alternative will be mitigated at a credit to hectare ratio of 1:0.40 (one Upper Chiquita Canyon Conservation Easement mitigation credit for every 0.40 ha impact or one Upper Chiquita Canyon Conservation Easement mitigation credit for every 1.0 ac lost).

B) Any additional scrub areas restored within the Upper Chiquita Canyon Conservation Easement area may be added to the credit total, with the approval of the USFWS, and applied to the mitigation ratio accordingly. The TCA or other implementing agencies and the USFWS shall determine the criteria for the establishment of the new credits for the restored areas pursuant to the Upper Chiquita Canyon Conservation Bank Agreement which was entered into with the USFWS and the CDFG.

C) Any scrub areas that are impacted by the selected alignment and that have not been mitigated by the use of the Upper Chiquita Canyon Conservation Easement mitigation credits (i.e., impact area exceeds mitigation credits available) shall be mitigated through preservation at a ratio of 1:1.

Measure TE 26. Impacts to native grasslands shall be mitigated at a 1:1 ratio through either preservation or restoration in designated open space (e.g., Upper Chiquita Canyon Conservation Easement). Should restoration be proposed, the restoration areas shall be located in areas deemed appropriate by the Project Biologist for native grassland restoration. Restoration areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area. The restoration program for native grassland areas shall be included in the BRMP and shall include the following measures.

- Site analysis for appropriate soils.
- Site preparation specifications based on site analysis, including but not limited to grading and weeding.
- Specifications for plant and seed material appropriate to the locality of the mitigation site and the timing of restoration activities.
- Specifications for site maintenance to establish the habitats, including but not limited to weeding and temporary irrigation.

Restoration areas shall be considered successful at five years if the following standards are achieved:

- The site does not require substantial maintenance for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Soil at the site exhibits a level of beneficial arbuscular mycorrhizal fungi that is comparable to an appropriate reference site, as demonstrated through soil infestivity potential.
- Absolute percent cover of native species is comparable to the absolute cover of native species at an appropriate reference site within an 80 percent confidence limit.
- An index of species diversity of the restored and/or created habitat areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

Monitoring shall be conducted for five years (or less if site meets success criteria as designated above earlier) to ensure successful establishment of native grassland vegetation within the restored areas. If success standards are not met, remedial measures, hydroseeding, or introduction of container stock shall be implemented as directed by the Project Biologist.

Measure TE 27. Impacts to floodplain sage scrub, riparian herb, and other sub-types within the Vernal Pools, Seeps, and Wet Meadows and Marsh plant communities (as defined in Section 5.0 of the NES) shall be mitigated at a 1:1 ratio or other ratio that compensates for functions and values. Mitigation shall consist of creating the above mentioned community types in the

approximate proportions in which they currently exist within the impact area or as otherwise required by the resource agencies. Creation areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area. The creation program for the above areas shall be included in the BRMP and shall include the following measures.

- Site analysis for appropriate soils and hydrology.
- Site preparation specifications based on site analysis, including but not limited to grading and weeding.
- Soil and plant material salvage from impact areas, as appropriate to the timing of impact and restoration as well as the location of restoration sites.
- Specifications for plant and seed material appropriate to the locality of the mitigation site.
- Specifications for site maintenance to establish the habitats, including but not limited to weeding and temporary irrigation.

Creation areas shall be considered successful if the following standards are achieved:

- The site does not require substantial maintenance for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native species is comparable to the absolute cover of native species at an appropriate reference site within an 80 percent confidence limit.
- An index of species diversity of the restored and/or created habitat areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

Monitoring shall be conducted for five years (or less if success criteria are met as designated above earlier) to ensure successful establishment of hydrophytic vegetation within the restored/created areas by wetland species. If success standards are not met, remedial measures, seeding, or introduction of container stock shall be implemented as directed by the Project Biologist.

Measure TE 28. Impacts to riparian scrub, woodland, and forest communities (as defined in Section 5.0 of the NES) shall be mitigated by mitigation of such communities at a 1:1 ratio or other ratio that compensates for functions and values. Mitigation areas shall occur within dedicated open space areas including, but not limited to, the Upper Chiquita Canyon Conservation Easement area as determined by the Project Biologist. The restoration program shall be detailed with the BRMP.

Prior to restoration of these communities, hydrological testing and monitoring of the creation site shall be conducted to determine that sufficient hydrology exists to support the community. If necessary, a temporary irrigation program shall be incorporated into the mitigation design to ensure successful establishment of the community.

The following performance standards shall apply for the restoration of these areas (except for southern coast live oak riparian forest). Restoration shall be considered successful if:

- The site does not require substantial maintenance for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native upper and mid canopy species is 70 percent.
- An index of species diversity of the restored areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

For southern coast live oak riparian forest, the following standards shall apply:

- The site does not require substantial maintenance and meets the success criteria established for this community for at least two consecutive years during the monitoring period.
- The site must exhibit evidence of natural recruitment of native species, including plant reproduction and/or setting of seeds.
- Absolute percent cover of native upper and mid canopy species is 50 percent, with five percent cover from oak trees.
- An index of species diversity of the restored areas is statistically comparable to an appropriate reference site within an 80 percent confidence limit.

Monitoring shall be conducted for a minimum of five years to ensure successful establishment of the restored areas. If success standards are not met, remedial measures including introduction of additional container stock and adjusting of irrigation shall be implemented as directed by the Project Biologist.

Measure TE 29. Impacts to open water shall be mitigated by the creation of wetlands and/or impounded feature to be incorporated into the herbaceous riparian habitat restoration to compensate for functions and values. The open water mitigation areas shall be located at a site determined by the Project Biologist to have hydrology sufficient to support the desired open water feature. Appropriate hydrological and soils testing shall be performed to ensure that the created open water area function properly. Creation of open water areas shall be maintained as part of the herbaceous riparian habitat restoration.

8.13 MITIGATION MEASURES RELATED TO WILD AND SCENIC RIVERS

No mitigation required.

8.14 MITIGATION MEASURES RELATED TO COASTAL BARRIERS

No mitigation required.

8.15 MITIGATION MEASURES RELATED TO COASTAL ZONE

Mitigation measures for impacts in the Coastal Zone are found in the following topical areas for which coastal zone permitting is concerned: biological, cultural, paleontological and visual resources. Refer to Sections 8.10 (Mitigation Measures Related to Wetlands and Waters of the United States), 8.12 (Mitigation Measures Related to Threatened and Endangered Species), 8.16 (Mitigation Measures Related to Historic and Archaeological Resources), 8.18 (Mitigation Measures Related to Visual Resources) and 8.23 (Mitigation Measures Related to Paleontological Resources) for a description of these measures.

8.16 MITIGATION MEASURES RELATED TO HISTORIC AND ARCHEOLOGICAL RESOURCES

Measure AR-1. Prior to the start of construction activity, a qualified archaeologist shall be retained by the TCA or other implementing agency/agencies to perform subsurface test level investigation and surface collection on sites potentially eligible for NRHP. The test level report evaluating the site shall include discussion of significance (scientific data potential), integrity (location, physical characteristics, and condition), mitigation recommendations, and cost estimates. Final mitigation shall be carried out based on the report recommendations, input by FHWA and SHPO, and a determination as to the site's disposition by the TCA with concurrence of the FHWA. Possible recommendations made by a qualified archaeologist include, but are not limited to, preservation, data recovery, or no mitigation necessary.

Measure AR-2. In conjunction with the final design, the TCA or other implementing agency/agencies shall retain a qualified archaeologist to conduct data recovery of the archaeological resources in the construction area. A final report of the data recovery operation shall be submitted to the TCA prior to any grading in the archaeological site areas.

Measure AR-3. Prior to the start of construction activity, the TCA or other implementing agency/agencies shall retain a qualified archaeologist. The archaeologist shall establish procedures (monitoring plan) for archaeological resource surveillance, and procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the cultural resources as appropriate. The archaeologist shall also be present at the pregrading conference to explain the established procedures based on a preapproved monitoring plan. If additional or unexpected archaeological resources are discovered, a qualified archaeologist shall determine appropriate actions, in cooperation with the TCA, for testing and/or data recovery. The archaeologist shall submit a follow-up report to the TCA that shall include the period of

inspection, an analysis of any artifacts found, the results of any testing or data recovery, and the present repository of the artifacts.

Measure AR-4. In conjunction with the final design, the TCA will investigate various design features including options for reversibility of design, i.e., avoidance of core areas, minimization of cut, maximization of fill, bridge structure on columns, etc., in the vicinity of the Village of Panhe (within the San Mateo Archaeological National Register District) could assist in minimizing impacts to the District as a result of the selected Alternative. If it is determined that a design feature can feasibly assist in minimizing impacts to the District, the TCA will incorporate this feature in the final design for the selected alternative.

Measure HR-1. Prior to the start of construction activity (project related demolition), the TCA or other implementing agency/agencies shall retain a qualified architectural historian/historical architect to record National Register of Historic Places listed or eligible buildings, structures, and objects that will be removed by the Alternative, according to Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) standards. The documentation will be performed in consultation with the National Park Service (NPS), and the State Office of Historic Preservation (OHP). HABS/HAER documents utilize the Secretary of the Interior's *Standards for Architectural and Engineering Documentation*, which is linked to the Secretary's *Guidelines for Architectural and Engineering Documentation* and the HABS/HAER Procedures Manual which provide more specific guidance and technical information. The level of documentation for each individual resource or district will be determined in consultation with NPS, but may include:

- Drawings: a full set of measured drawings depicting existing and historic conditions.
- Photographs: photographs with large format negatives of exterior and interior views, photocopies with large format negatives of select existing drawings or historic views where available.
- Written data: history and description. HABS/HAER recordation for each resource should update and augment any previously completed documentation of the resource. Documentation should be completed within 180 days of the FHWA approval of the SOCTIIP project. The product should be submitted to the NPS for review and addition to the HABS/HAER collection maintained by the Library of Congress. Copies of the document should also be provided to local institutions or agencies (planning/community development departments, public libraries, historical societies) and made available for public review.

Measure HR-2. The TCA or other implementing agency/agencies in consultation with local agencies and the SHPO, shall create a permanent display within a local facility readily accessible to the public, (such as such as public libraries, museums, or schools) that will interpret the history and construction of the resource and its historical context. The interpretive display may consist of durable panels and should include items such as: reproductions of historical photographs, original construction drawings, or other drawings, drawings and photographs that are part of HABS/HAER documentation completed as part of the mitigation measures, and explanatory text. Items such as reproductions or actual architectural elements, discarded

hardware, or other items used in the original construction may also be incorporated, as may oral histories collected from individuals associated with the resource in text, audio, and/or video format. The interpretive display should be completed and in place prior to initiation of operations on any part of the selected corridor.

Measure HR-3. The TCA or other implementing agency/agencies in consultation with the local agencies and SHPO, shall create an internet website on the world wide web that will interpret the resource impacted by the proposed construction. The website should include written explanatory text discussing the history and context of the resource, historic and contemporary photographs of the resource, drawings and/or diagrams as appropriate. It may also include oral histories collected from individuals associated with the resource, in text, audio, and/or streaming video format. The website may be a stand alone site, or linked to existing websites maintained by local or county historical organizations. The interpretive website should be completed and accessible prior to initiation of operations on the selected corridor.

Measure HR-4. In the event that design of the project requires the demolition of any Federal, State, or locally listed or eligible historical resource, the TCA or other implementing agency/agencies shall, with the approval of the responsible municipal agency, salvage any historical elements or fittings of the structure(s) which may be useful for reuse or display prior to the commencement of any alteration, grading, or demolition of the site.

Measure HR-5. If an historic resource is retained, the impacts from project construction which change the resources historic fabric, appearance or setting should be mitigated through a policy of adherence to *The Secretary of the Interiors Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995) and/or *The Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes (1995)* whenever repair or rehabilitation work is required.

8.17 MITIGATION MEASURES RELATED TO HAZARDOUS MATERIALS AND HAZARDOUS WASTE SITES

Measure HM-1: Testing For Contaminated Groundwater. Groundwater testing for the presence of pesticides, nitrates, metals and petroleum hydrocarbons will be required by the Regional Water Quality Control Board (RWQCB) prior to construction in all areas where excavation may extend into groundwater based on final design criteria. All wastewater generated during construction will meet all applicable requirements of the RWQCB prior to disposal.

Measure HM-2: Aerially Deposited Lead. In areas immediately adjacent to existing roads proposed for construction (I-5, arterials), soil samples will be collected and analyzed for lead concentrations during final design, consistent with "Lead Testing Recommendations for Districts with Aerially Deposited Lead (ADL) Variance" (Caltrans 2001), "Invoking the Aerially Deposited Lead Variance" (Caltrans, no date), DTSC "Variance 00-H-VAR-07," and Standard Special Provision SSP 19-900, S5-740. If lead-affected soil is found, the results/conclusions will be included in the Site Investigation Report, the Standard Special Provisions (SSP) and the Material Information Handout (MIH). The SSP and MIH will be incorporated in design specifications and will include measures to safeguard public health before and during

construction. Depending on the concentrations and volumes encountered, excavation and disposal of lead-impacted soil may be required. If such excavation is indicated, procedures for handling and disposal will be included in the design specifications. Soil contaminated with ADL will be removed and disposed of, in concurrence with the variance issued to the California Department of Transportation (Caltrans) by the California Department of Toxic Substances Control (DTSC). This material may be reused for embankment fill, retaining wall backfill and/or capped with an appropriate amount of clean fill material. Specifically, DTSC granted Caltrans a variance in 2000 to allow for the use of some lead contaminated soils for fill and backfill during construction of freeway improvements, provided that Caltrans' handling and use of those soils are consistent with the conditions, limitation and requirements described in that variance. A copy of that variance is available for review at the Caltrans District 12 office. This variance is valid through September 22, 2005 per Caltrans and will need to be renewed. It is anticipated that all of the lead contaminated soil in the SOCTIIP study area affected by the Alternatives would be used during the construction of the proposed project. Although there is not expected to be the need to remove and dispose of any lead contaminated soil off site during construction, any excess contaminated soil would be disposed of consistent with all applicable federal, state and local regulations.

Measure HM-3: Agricultural Lands. Prior to grading in agricultural areas, a soil sampling plan and a worker health and safety plan will be prepared and implemented to identify areas of chemically affected soils to minimize the risk of exposure to worker safety during construction. The soil sampling plan will include appropriate sampling criteria for screening excavated soils by profiling for reuse or disposal, as appropriate. Surface soil samples within the disturbance limits will be collected and analyzed for pesticide and herbicide residues. If elevated residue levels are detected, a Risk Management Plan (RMP) for the impacted soil will be developed and implemented during construction.

Measure HM-4: Abandoned Oils Wells or Test Borings. The abandoned oil wells and test borings will be positively located and any remaining components (such as steel surface casings) will be removed before grading for the SOCTIIP build Alternatives. In the event that an undocumented oil well or test boring is encountered during construction of any SOCTIIP Alternative, reabandonment of the well or boring will be implemented to comply with applicable California Department of Oil and Gas (CDOG) requirements.

Measure HM-5: Asbestos Containing Building Materials., Consistent with the requirements of the South Coast Air Quality Management District (SCAQMD), asbestos sampling and notification will be implemented prior to any demolition or renovation of existing bridges, road structures or buildings. All asbestos contain building waste materials will be properly handled and disposed of consistent with all applicable federal, state and local regulations. Formal notification to SCAQMD will be made at least 10 days before any demolition work, regardless of whether or not asbestos is known to be present.

Measure HM-6: Hazardous Materials in Highway Infrastructure. If any existing thermoplastic or painted traffic stripes on existing roads are proposed for removal, testing of those stripes will be performed prior to construction to assess the level of lead and chromium. The testing will identify specific actions that will be implemented to safely remove and dispose of these stripes.

It is also possible that some components of bridges or other highway infrastructure may include asbestos-containing materials (ACMs). Building materials in all structures slated for demolition will be surveyed for asbestos content before demolition begins and any materials found to be ACMS will be removed (abated) before demolition, as described in measure HM-5.

Measure HM-7: Construction Related Hazardous Materials. All construction activities will be required to comply with existing federal, state and local regulations regarding the handling, use, storage and disposal of hazardous materials, including specific regulations on response in the event of accidental release.

Measure HM-8: Hazardous Materials Associated with Existing Utilities. If leakage or damage from existing utilities is identified during construction, appropriate containment and remedial measures will be implemented, as necessary, in consultation with the affected utility provider and in compliance with existing local, state and federal regulations.

Measure HM-9: Alignment Specific Database Review. During final design for the selected Alternative, an updated regulatory database report will be obtained and regulatory records for identified sites of concern, such as leaking underground storage tank locations, will be reviewed. The intent of obtaining and reviewing this updated information will be to evaluate changes in, or the progress of, ongoing monitoring and remediation activities at those properties within or immediately adjacent to the disturbance limits for the selected Alternative. The results of this additional database and records review will be used in developing the final construction plans and schedules.

Measure HM-10: Underground Storage Tanks. The removal of underground storage tanks affected by the SOCTIIP build Alternatives will be coordinated by the facility tenant or property owner (which could be the current owner, the TCA, other implementing agency, Caltrans or the applicable local jurisdiction), and regulatory closure would be directed and approved by the applicable local oversight regulatory agency. These local oversight regulatory agencies may include the Orange County Health Care Agency, San Diego Hazardous Materials Management District and/or the San Diego and/or Santa Ana Regional Water Quality Control Boards (RWQCBs). Appropriate mitigation will include monitoring the progress of UST closure activities through periodically updating the regulatory database review. This measure will be conducted for the selected SOCTIIP build Alternative.

Measure HM-11: Prima Deshecha Sanitary Landfill. For those SOCTIIP build Alternatives which traverse the Prima Deshecha Sanitary Landfill, an evaluation of methane concentrations in the area of the proposed construction will be conducted to evaluate the potential risk to worker safety. Although undocumented, it is conceivable that hazardous wastes may exist in the parts of the Landfill site disturbed during construction of these build Alternatives and excavation in Waste Management Unit 2, if required. Prior to construction, a subsurface investigation of the emplaced wastes will be conducted. Any hazardous substances that may pose unacceptable risks to human health or the environment will either be avoided through redesign of the relevant project features or will be removed and properly disposed of by the responsible party or parties identified during the right-of-way acquisition process. Also, a health, safety and emergency contingency program will be designed to minimize worker exposure to methane and previously

undocumented hazardous materials on the Landfill site. The program will include the preparation of a soil-vapor screening program, including soil collection and analysis to evaluate the presence of chemically affected soil for disposal purposes. Final design will be coordinated with the California Integrated Waste Management Board, the Santa Ana RWQCB and/or local regulatory agencies, as applicable, to meet applicable permit guidelines related to construction in previously closed parts of the Landfill.

Measure HM-12: Hazardous Materials Sites. During final design, existing businesses within the disturbance limits for the selected Alternative will be evaluated related to hazardous materials concerns to identify areas where soil sampling is warranted. Based on this reevaluation, subsurface sampling may be conducted to evaluate the presence of previous chemical releases associated with these types of land uses. Identified contamination will be remediated prior to or during construction of the selected Alternative. The right-of-way acquisition process will specifically address the need for hazardous materials remediation. Remediation, consistent with regulatory requirements and standards, will fully mitigate adverse impacts associated with existing hazardous materials or wastes sites on property acquired for the selected Alternative.

Measure HM-13: Camp Pendleton. If the selected Alternative crosses Camp Pendleton, the Department of the Navy (DON) will be consulted and a review of current United States Environmental Protection Agency (EPA) files will be conducted during final design to evaluate whether National Priorities List (NPL) records indicate that hazardous materials releases have occurred beneath the northwestern part of the Base, which may impact the SOCTIIP build Alternative. Current regulatory records pertaining to the integrity of the USTs and associated piping at the Base gas station will be reviewed. In the event that the regulatory files lack records of monitoring or UST integrity test results, subsurface sampling activities will be conducted, including confirmation soil sampling conducted within the disturbance limits of the build Alternative. Evaluation of potentially impacted or environmentally impaired properties will be performed prior to acquisition in order to determine the degree of environmental risk and liability for both the buyer and seller.

Measure HM-14: Camp Pendleton. In the event that an Alternative that traverses a part of Camp Pendleton is ultimately selected for construction, the right-of-way easement granted by the DON to the TCA or other implementing agency (for a non-corridor Alternative) shall contain the following provisions: 1) procedures for control and manifesting of hazardous waste generated by construction or maintenance activities; 2) Assignment of responsibility for hazardous waste management, spill accountability, and hazardous waste disposal (including manifesting); 3) The EPA identification (ID) number to be used to manifest hazardous wastes; 4) Responsibility for acquisition of any required health permits; 5) Procedures for management of HW stored on Camp Pendleton property; 6) Assignment of responsibility for any Notices of Violation or other regulatory enforcement actions occurring within the Alternative right-of-way during construction or operation of the SOCTIIP project.

Measure HM-15: TRW Capistrano Test Site. If the selected Alternative traverses the Capistrano Test site, the groundwater well shall be sampled and abandoned in a cooperative effort with TRW in accordance with applicable regulatory guidelines.

Measure HM-16: Petroleum Pipeline. If records of pipeline integrity testing are unavailable, a soil screening program, including the collection and analysis of soil samples beneath the pipeline, will be implemented in a cooperative effort with Kinder Morgan, the pipeline operator. The soil sampling will be conducted to evaluate the presence of chemically affected soil. If contaminated soil is documented associated with this pipeline, appropriate remediation in compliance with existing local, state and federal regulations will be implemented, in conjunction with Kinder Morgan.

Measure HM-17: Electrical Substations. If the final design for a build Alternative calls for the relocation of oil cooled and/or lubricated electrical equipment at existing electrical substations, the TCA will coordinate with the owner of the substation during final design to determine whether an evaluation of soils beneath the relocated equipment is necessary and appropriate. The TCA would also coordinate with the owner of the substation regarding the remediation of any contaminated soil associated with the affected electrical equipment, consistent with applicable local, state and federal regulations.

Mitigation Measure HM-18 Previously Unknown Hazardous Materials Encountered During Construction. If previously unknown hazardous materials or objects that could contain hazardous materials (such as an undocumented underground storage tank) are discovered during construction, construction personnel will notify TCA or the implementing agency immediately and implement measures to control and characterize the materials encountered, including notification of hazardous materials emergency response personnel as appropriate. Characterization of the possible hazardous materials will be similar to the provisions of HM-12. The construction contractor will provide for this contingency in the Health and Safety Plan for the project.

NES Measure 12 for Construction Storage: During all construction activities, the contractor shall ensure that construction equipment or vehicles shall not be stored within areas defined as Environmentally Sensitive Areas (ESAs), including areas within the jurisdiction of the ACOE and/or CDFG. There shall be no fueling, lubrication, storage, or maintenance of construction equipment within 46 m (150 ft) of CDFG or ACOE jurisdictional areas.

NES Measure 13 for Construction Disposal: During all construction activities, the contractor shall ensure that no waste material shall be discharged to any CDFG or ACOE jurisdictional areas. Spoil sites shall not be located within any CDFG or ACOE jurisdictional areas, or in areas where it could be washed into any surface water body.

8.18 MITIGATION MEASURES RELATED TO VISUAL RESOURCES

Measure AS-1. Adjacent landforms affected by the build Alternatives shall be recontoured to a 2:1 slope or as determined appropriate through geotechnical investigation to provide a smooth and gradual transition between modified landforms and existing grade and to minimize the appearance of manufactured grading. Use of crib-type retaining walls in place of slopes shall be minimized, except where necessary to provide greater landform diversity, reduce fill slopes, minimize long, flat slope surfaces or potentially salvage rock outcroppings. In areas where sensitive habitat is not prevalent, the top and toe of the slope edges shall be rounded to reduce

the angular effects of manufactured grading. The top of slopes where the surface breaks the horizon or ridgeline shall be undulated to avoid a straight edge along the skyline. For slopes greater than 20 m (65.6 feet), terrace drains shall be used to break up slope surfaces.

The TCA or the implementing agency/agencies shall prepare Aesthetic Design Guidelines for the project, similar to the guidelines for the San Joaquin Hills Transportation Corridor and the Foothill/Eastern Transportation Corridor. It is not possible to provide these guidelines at this stage of the project. The guidelines will be developed during final design of a preferred Alternative. The Design Guidelines shall specifically address grading, berm design, slopes, benches and the incorporation of sound and retaining walls. These Guidelines will be used in conjunction with the Landscape Design Guidelines described in measure AS-2 to minimize the visual impacts of the build Alternatives.

Measure AS-2. The TCA or the implementing agency/agencies shall prepare Landscape Design Guidelines that will specify plant species that will either be seeded or planted on all exposed areas such that these areas will blend with the surrounding vegetated areas. Native vegetation shall be placed in appropriate locations and densities to fit into the natural setting. Landscaping with varied height and species diversity shall be used and material selection, location of native plant materials and sculptured grading shall emulate the adjacent natural setting. Terrace drains shall be screened with periodic placement of native plant materials in a random manner to help blend these drainage facilities into the slope and not unintentionally emphasize these facilities. The Landscape Design Guidelines will include the locations of the shrubs and/or vining species, where appropriate, at the base of soundwalls to blend these structures as much as possible with the surrounding areas. All landscaping treatments and materials shall be consistent with the Landscape Design Guidelines.

Measure AS-3. Lighting per Caltrans policies and procedures as set forth in the Caltrans Traffic Manual shall be installed by the TCA or implementing agency or agencies along the corridor or I-5, if one of these build Alternatives is selected. Lighting shall be such that Partial Interchange Lighting (PIL) with two electroliers at each interchange ramp, positioned per Caltrans standards, is provided. Additional and/or supplemental lighting shall be provided where necessary for safety. Toll collection plazas and their adjacent roadways shall be continuously lit. The mainline corridor shall not be continuously lit.

Lighting per County of Orange or local jurisdiction standards shall be installed along the arterials under the AIO Alternative by the implementing agency/agencies.

Measure AS-4. In conjunction with operation of the corridor Alternatives, light shall be applied as effectively as possible by the TCA, minimizing both the glare of any light source and the spillover of light onto areas outside of the corridor right-of-way, particularly open space areas and the Donna O'Neill Land Conservancy. The vertical or horizontal illuminance from roadway lighting sources shall not illuminate any surface outside of the right-of-way greater than 1/10 of the road's average horizontal illuminance.

In conjunction with operation of the AIO and I-5 Alternatives, light shall be applied as effectively as possible by the implementing agency/agencies, minimizing both the glare of any

light source and the spillover of light onto areas outside of the road rights-of-way.

8.19 MITIGATION MEASURES RELATED TO ENERGY

No mitigation required.

8.20 MITIGATION MEASURES RELATED TO EARTH RESOURCES

Measure G-1. Prior to final design for the selected Alternative, a design level geotechnical report will be prepared for the selected Alternative. This report will document potential soil-related constraints and hazards such as slope instability, settlement, liquefaction or related secondary seismic impacts that may be present. Acceptance of the report will be subject to approval by the TCA and other agencies that may have jurisdiction. A minimum factor of safety of 1.5 shall be used to determine the final slope configuration. The report shall also include:

- Evaluation of potentially expansive soils and recommendations regarding construction procedures and/or design criteria to minimize the effect of these soils on the development of the corridor.

- The design level geotechnical studies will identify potentially liquefiable areas and provide recommendations for mitigation. Any areas that require mitigation would be within the disturbed areas, and no additional impacts would result.

Measure G-2. In conjunction with final design, it will be demonstrated that side slopes shall be designed and graded so that the potential for surface erosion of the engineered fill is not increased from natural conditions.

Measure G-3. In conjunction with construction activity, native vegetation with good soil-binding characteristics and low water requirements will be planted on engineered slopes to reduce erosion and slope instability.

Measure G-4. A quality assurance/quality control plan will be maintained during construction. This will include observing, monitoring and testing by a geotechnical engineer and/or geologist during construction to confirm that geotechnical/geologic recommendations are fulfilled, or if different site conditions are encountered, appropriate changes are made to accommodate such issues.

Measure G-5. Once a final project alignment has been selected, a detailed review will be made to locate all groundwater wells within the project footprint. Any groundwater wells that occur within the project footprint will be abandoned properly during project construction. As may be required, (i.e., for active wells), the water supply provided by the well will be replaced. Replacement water may be provided by a variety of means, such as installing a new well or a connection to municipal supply.

8.21 MITIGATION MEASURES RELATED TO MILITARY USES

M-1: Nighttime Lighting and Shielding. During construction of the SOCTIIP build Alternatives on or in the immediate vicinity of Camp Pendleton, to minimize conflicts with night training by Base personnel, the following will be implemented:

- Construction lighting requirements during evening and night activities will be adjusted with proper shielding to focus illumination downwards in designated work areas. To accomplish this, lighting fixtures will be fitted and hooded to minimize the spillage of light in an upward direction and on adjacent properties. Lighting will be designed to use the latest style of lighting (known as "mused lighting") to reduce the impact on night vision goggle training activities.

- Fixed lighting will not exceed the minimum needed to meet Caltrans standards. Lighting will be shrouded to reduce backscatter and vertical light pollution and will be of a type to minimize effects on adaptation to darkness and changes in light levels.

- A design review memoranda will be produced by the Contractor indicating that lighting design and materials used to minimize light and glare during construction are consistent with the requirements of this mitigation measure.

- Cranes which would remain extended to a height of 12.2 meters (40 feet) above ground level (AGL) or higher during night-time hours must include the use of a Federal Aviation Administration (FAA) approved aircraft obstruction light mounted at the highest point of the equipment's extension AGL. The aircraft obstruction light must be operational from 30 minutes before sunset until 30 minutes after sunrise each day the equipment is in place and extended above 12.2 meters (40 feet) AGL overnight.

M-2: Access and Coordination. Construction activities and equipment movement could adversely impact the movement of troops and use of ranges during construction. These impacts will be mitigated by coordination among the TCA, the Contractor and Camp Pendleton personnel. Specifically, the Contractor will identify access routes, staging areas and all expected movement corridors during construction and will produce a design review memoranda/exhibit. These will be reviewed with the TCA and Camp Pendleton personnel to ensure construction activity impacts on Base training are minimized.

M-3: Base Security During Construction. For any corridor alignment which traverses or is in the immediate vicinity of Camp Pendleton, prior to final design, security measures shall be incorporated into the project construction specifications to ensure that construction workers and others cannot access the Base from the construction areas. These security measures shall be designed in consultation with Camp Pendleton and shall be in the form of physical barriers including but not limited to walls and fencing. These security measures shall be implemented prior to any project related construction and shall be adequately maintained throughout the construction period.

M-4: Nighttime Lighting and Shielding. During operation of a SOCTIIP build Alternative on or immediately adjacent to Camp Pendleton, to minimize conflicts with night training by Base personnel, permanent night lighting will be adjusted with proper shielding to focus illumination downwards. Lighting fixtures will be fitted and hooded to minimize the spillage of light in an upward direction and on adjacent properties including the Base. Lighting will be designed to use the latest style of lighting (known as "mused lighting") to further minimize potential glare effects on the Base. This design will be implemented at all places on and adjacent to the Base requiring lighting along the road including interchanges and the mainline. To reduce the impact on night vision goggle training activities, fixed lighting on and immediately adjacent to the Base will not exceed the minimum needed to meet Caltrans standards. Lighting on and immediately adjacent to the Base will be shrouded to reduce backscatter and vertical light pollution and should be of a type to minimize effects on adaptation to darkness and changes in light levels.

A design review memoranda will be produced by the Contractor indicating that lighting design and materials used to minimize light and glare during operation on and immediately adjacent to the Base are consistent with the requirements of this mitigation measure.

M-5: Land Use Fragmentation/Ground Training. To reduce impacts associated with the fragmentation of land available on Camp Pendleton and to avoid creating a parcel on the Base fully fragmented and inaccessible from the rest of the Base, two underpasses will be constructed to provide clearance for military personnel and equipment movement. The underpasses will be sized and designed to accommodate the equipment and personnel needs as may be defined by the Marine Corps and the DON.

M-6: Base Security. For any corridor alignment which traverses or is immediately adjacent to Camp Pendleton, prior to final design, security measures shall be incorporated into the project design to ensure that users of the corridor cannot access the Base. These measures shall be designed in consultation with Camp Pendleton and shall be in the form of physical barriers including but not limited to walls and fencing. These security measures shall be implemented and fully operable prior to public access to the corridor.

8.22 MITIGATION MEASURES RELATED TO MINERAL RESOURCES

The mitigation measures concerning impacts to the mineral resources is SE-2. Refer to Section 8.4 (Socioeconomics and Environmental Justice) for a description of this measure.

8.23 MITIGATION MEASURES RELATED TO PALEONTOLOGICAL RESOURCES

Measure P-1: Pre-Construction Salvage. Prior to the start of any earthmoving activity, an Orange County Certified (OCC) Paleontologist will be retained to conduct pregrading salvage of any significant exposed fossils identified by the OCC Paleontologist prior to any heavy equipment activity in a particular area. Paleontological monitoring of brush removal shall be performed by a qualified paleontologist, under the supervision of an OCC Paleontologist, to locate and salvage additional significant fossil remains not previously visible. The OCC

Paleontologist shall prepare a paleontological technical report that includes methodology, results, and an inventory list of significant fossils recovered.

Measure P-2: Monitoring Procedures. Prior to the start of any earthmoving activity, an OCC Paleontologist shall be retained to establish procedures, following these mitigation guidelines set forth in this Paleontological Resources Technical Report, for paleontological resource monitoring by qualified paleontological monitors during grading, and procedures for temporarily halting or redirecting work to permit the sampling, identification and evaluation of the fossils as appropriate. The OCC Paleontologist shall also establish emergency procedures applicable to the discovery of unanticipated significant paleontological resources (e.g. large specimens or significant concentrations of specimens as determined by the OCC Paleontologist). The OCC Paleontologist shall be present at the pregrading conference to explain the established procedures to the construction contractors.

Measure P-3: Construction Monitoring. During all construction activities which involve soil disturbance, the following activities will be conducted:

a. An Orange County Certified Paleontologist will be retained to supervise monitoring of construction excavations and to produce a mitigation plan for the proposed project. Paleontological monitoring will include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. The monitor will have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens.

b. If microfossils are present, the monitor will collect matrix for processing. In order to expedite removal of fossiliferous matrix, the monitor may request heavy machinery assistance to move large quantities of matrix out of the path of construction to designated stockpile areas. Testing of stockpiles will consist of screen washing small samples (approximately 90 kilograms, or 200 pounds) to determine if significant fossils are present. Productive tests will result in screen washing of additional matrix from the stockpiles to a maximum of 2,700 kg (6,000 lbs) per locality to ensure recovery of a scientifically significant sample.

c. Younger Quaternary Alluvium, San Onofre Breccia and Quaternary Landslide Deposits have a low or indeterminate paleontological sensitivity level, and will be spot-checked in a periodic basis to insure that older underlying sediments are not being penetrated and fossils are not being exposed. All earth-moving in the Williams Formation, Silverado Formation, Santiago Formation, Sespe Formation, Vaqueros Formation, Sespe/Vaqueros Undifferentied, Topanga Formation, Monterey Formation, Capistrano Formation, Niguel Formation, Older Quaternary Alluvium and Quaternary Marine and Non-Marine Terrace Deposits will be monitored full-time. The moderate to high paleontological sensitivity of these formations requires a maximum effort to recover fossils.

d. The Orange County Certified Paleontologist will prepare monthly progress reports to be filed with the client and the lead agencies.

e. Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to allow analysis, and deposited in a designated repository such as a County of Orange facility, which shall have the first right-of-refusal of the collection, or the Natural History Museum of Los Angeles County or San Diego Natural History Museum.

f. At each fossil locality, field data forms will record the locality, stratigraphic columns will be measured and appropriate scientific samples submitted for analysis.

The Orange County Certified Paleontologist will prepare a final mitigation report to be filed with the client, the lead agencies, and the repository.

8.24 MITIGATION MEASURES RELATED TO PUBLIC SERVICES AND UTILITIES

Mitigation Measures for Public Services

Measure PS-1: Avoidance of the Temporary Use and/or Permanent Acquisition of Public Services and Utilities Property. During final design, the TCA or the implementing agency/agencies will refine the design to the extent feasible based on engineering judgment and design standards to avoid or minimize the temporary use during construction and the permanent acquisition of land currently occupied by public services and utilities. In the event that the temporary use or permanent acquisition of this property cannot be avoided through design refinements, other mitigation measures identified for the compensation of temporary and permanent use of public services and utilities property will apply to the build Alternatives.

Measure PS-2: Fire Protection. During construction, in areas subject to wildland fires as determined by the OCFA, or the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, the contractor will be required to install signs around construction sites warning of high fire risk and of area closings during the high fire season as declared by OCFA or the MCB Camp Pendleton Fire Department.

Measure PS-3: Fire Protection. During operation of a build Alternative, Caltrans (for the corridor, Ortega Highway and I-5) and/or the local jurisdiction (for local arterials), as appropriate, will install signs along the new or improved road segments in areas subject to wildland fires as determined by the OCFA, or the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, warning of high fire risk and of area closings during the high fire season declared by OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-4: Fire Protection. Emergency call boxes will be installed along the road in undeveloped areas of high and extreme fire hazard, consistent with existing OCFA, Orange County Transportation Authority, Caltrans, TCA and/or local jurisdiction, as appropriate, policies on emergency call boxes.

Measure PS-5: Fire Protection. During construction of a build Alternative, the contractor will be required to maintain access to the existing fire road grid for the OCFA, and the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton.

Measure PS-6: Fire Protection. During final design for a build Alternative, the long term preservation/provision of access to the existing fire road grid for the OCFA, and the MCB Camp Pendleton Fire Department for areas on MCB Camp Pendleton, will be incorporated in the facility design, in consultation with the OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-7: Fire Protection. During construction of a build Alternative, the contractor will implement fuel modification techniques as required by the OCFA, and the MCB Camp Pendleton Fire Department in areas on MCB Camp Pendleton, in areas of fire hazard as determined by the OCFA and the MCB Camp Pendleton Fire Department.

Measure PS-8: Fire, Emergency Medical and Law Enforcement. During final design, the TCA, Caltrans and/or the City of San Clemente, as appropriate, will coordinate the addition of OPTICON or other traffic pre-emption devices as used in the City of San Clemente with the City's traffic engineer. These devices will be provided at impacted intersections, as identified in the Traffic Technical Report, to reduce impacts to fire, medical emergency and law enforcement response times.

Mitigation Measure PS-9: Fire, Emergency Medical and Law Enforcement. During construction the TCA or the implementing agency/agencies will require the contractor to coordinate all temporary ramp closures and detour plans with fire, emergency medical and law enforcement providers to minimize temporary delays in response times.

Measure PS-10: Law Enforcement. Prior to operation of any build Alternative which crosses MCB Camp Pendleton, the State of California shall solicit a transfer of concurrent legal (law enforcement) jurisdiction from the federal government to the State for any part of an Alternative that crosses MCB Camp Pendleton as provided in Section 2851 of the Fiscal Year 1999 National Defense Authorization Act (H.R. 3616).

Measure PS-11: Solid Waste. Prior to the final design of a build Alternative that crosses Prima Deshecha Sanitary Landfill, the TCA (Corridor Alternatives) or implementing agency/agencies (AIO Alternative) shall consult with site engineers from the Landfill to identify and incorporate design elements that minimize impacts related to capacity and Landfill life span. Construction across or excavation in any areas previously used for landfilling will be carried out consistent with all pertinent local, state and federal regulations regarding construction and disturbance in areas previously used for landfilling.

Measure PS-12: Solid Waste. During final design of a build Alternative which crosses Prima Deshecha Sanitary Landfill, the TCA (Corridor Alternatives) or implementing agency/agencies (AIO Alternative) will incorporate access routes on the Landfill site to accommodate travel within this site for waste disposal and other vehicles. Specifically, the access routes will allow vehicles to access Zone 4 from the existing La Pata Avenue access road and to access all areas in Zone 4. At no time, including during construction, will access to or within Prima Deshecha Sanitary Landfill be restricted such that landfilling operations are adversely affected. The current designs for the corridor Alternatives include this access. The current designs for the AIO

Alternative would require modification by the implementing agency/agencies to include this access.

Measure PS-13: Solid Waste. Prior to construction of a build Alternative which will generate excess fill, the contractor will be required to offer fill for use in other development projects or to area landfills as daily cover. Landfilling of excess soil and rock material will be considered the option of last resort.

PS-13A: Solid Waste. Excess fill material from construction will not be disposed of at MCB Camp Pendleton landfills, unless such disposal is approved in advance though mutual agreement with the Environmental Security Department's Solid Waste Branch. If Base agreement for such disposal is granted, the contractor shall be responsible for hauling the materials to the Base landfill(s) and for complying with all Base regulations regarding the transport and disposal of that material on the Base.

Measure PS-14: Direct Permanent Impacts on Schools. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with the school districts or private schools whose facilities will be permanently acquired to determine appropriate action and/or compensation to mitigate for the permanent acquisition.

Measure PS-15: Direct Temporary Impacts on Schools. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with the school districts whose facilities will be temporarily removed during construction to determine appropriate action and or compensation to mitigate for the temporary use.

Measure PS-16: Public Facilities. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with owners of public facilities that will be removed, partially removed or will experience loss of parking facilities, to determine appropriate action and/or compensation to mitigate for the temporary use and/or permanent acquisition.

Mitigation Measures for Public Utilities

Measure U-1: Utilities. As early as possible during final design, the TCA or other implementing agency/agencies, as appropriate, will consult with each utility provider/owner to avoid or reduce potential impacts on existing and planned utilities through design refinements. Should impacts be unavoidable, all affected facilities shall be relocated or protected in place prior to, during or after construction, as appropriate, and in accordance with the methods and designs approved by the affected utility provider/owner. For utilities located on MCB Camp Pendleton, as early as possible the TCA or other implementing agency/agencies will consult with and receive approval from the Marine Corps on any utility relocations or realignments prior to discussing the proposed activities with utility providers.

Measure U-2: Temporary Use and Permanent Acquisition. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the TCA or other implementing agency/agencies will negotiate with utility providers whose facilities will be temporary used and/or permanently acquired to determine appropriate action and/or compensation to mitigate for the temporary use and/or permanent acquisition of their property.

Measure U-3: MCB Camp Pendleton Percolation Ponds. Consistent with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 appropriate action and compensation to reduce the effect of the encroachment on MCB Camp Pendleton will be negotiated with the Department of the Navy.

8.25 MITIGATION MEASURES RELATED TO RECREATION RESOURCES

Mitigation measures concerning impacts to recreation are R-1 to R-5. Refer to Section 8.5 (Mitigation Measures Related to Pedestrian and Bicycle Facilities) for a description of these measures.

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Far East Corridor-Modified Alternative	
None.	None.
Far East Corridor-West Alternative	
None.	None.
Central Corridor-Complete Alternative	
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Avenida Pico under Scenarios 1, 3 and 4.	No conventional intersection enhancements could be identified (traffic share = 19%).
Long range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Avd Pico under Scenarios 1, 3 and 4.	Widen to a two-lane on-ramp (traffic share = 58%).
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Avd Pico under Scenarios 1, 3 and 4.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 58%).
Central Corridor-Avenida La Pata Variation Alternative	
Long-range peak hour LOS intersection deficiency: Avd La Pata & Avd Pico under Scenarios 1 and 3.	Add second eastbound left-turn lane and convert second northbound through lane to shared second through/ second right-turn lane (traffic share = 16%).
Long-range peak hour LOS intersection deficiency: Avd La Pata & Avd Vista Hermosa under Scenarios 1 and 3.	Add third eastbound through lane and second westbound left-turn lane (traffic share = 22%).
Long-range peak hour LOS intersection deficiency: Avd Talega & Ave Vista Hermosa under Scenario 1.	Add third westbound through lane (traffic share = 37%).
Long-range peak hour LOS intersection deficiency: Avd Vista Hermosa & Avd Pico under Scenario 1.	Add westbound right-turn lane and convert third eastbound through lane to third eastbound left-turn lane (traffic share = 31%).
Long-range peak hour LOS intersection deficiency: Cm Vera Cruz & Avd Vista Hermosa under Scenario 1.	Add third eastbound and westbound through lanes and second southbound left-turn lane (traffic share = 10%).
Long-range peak hour LOS intersection deficiency: I-5 northbound ramps & Avd Pico under Scenarios 1 and 3.	Add third eastbound through lane and second eastbound left-turn lane (traffic share = 17%).
Long-range peak hour LOS intersection deficiency: I-5 southbound ramps & Avd Pico under Scenarios 1 and 3.	Reconstruct intersection as part of ramp improvement listed below to provide separate southbound on-ramps from eastbound and westbound Avd Pico (traffic share = 21%).
Long-range peak hour LOS ramp deficiency: I-5 northbound off-ramp at Avd Pico under Scenarios 1 and 3.	Add second drop lane from I-5 to the off-ramp (traffic share = 36%).
Long-range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Avd Pico under Scenarios 1 and 3.	Widen to a two-lane on-ramp (traffic share = 6%).

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Long-range peak hour LOS ramp deficiency: I-5 southbound on-ramp at Avd Pico under Scenarios 1 and 3.	Provide separate on-ramps from eastbound and westbound Avd Pico (traffic share = 35%).
Alignment 7 Corridor-Far East Crossover-Modified Alternative	
None.	None.
Alignment 7 Corridor-Avenida La Pata Variation Alternative	
Long-range peak hour LOS intersection deficiency: Avd La Pata & Avd Pico under Scenarios 1 and 3.	Add second eastbound left-turn lane and convert second northbound through lane to shared second through/second right-turn lane (traffic share = 16%).
Long-range peak hour LOS intersection deficiency: Avd la Pata & Avd Vista Hermosa under Scenarios 1 and 3.	Add third eastbound through lane and second westbound left-turn lane (traffic share = 22%).
Long-range peak hour LOS intersection deficiency: Avd Talega & Ave Vista Hermosa under Scenario 1.	Add third westbound through lane (traffic share = 37%).
Long-range peak hour LOS intersection deficiency: Avd Vista Hermosa & Avd Pico under Scenario 1.	Add westbound right-turn lane and convert third eastbound through lane to third eastbound left-turn lane (traffic share = 31%).
Long-range peak hour LOS intersection deficiency: Cm Vera Cruz & Avd Vista Hermosa under Scenario 1.	Add third eastbound and westbound through lanes and second southbound left-turn lane (traffic share = 10%).
Long-range peak hour LOS intersection deficiency: I-5 northbound ramps & Avd Pico under Scenarios 1 and 3.	Add third eastbound through lane and second eastbound left-turn lane (traffic share = 17%).
Long-range peak hour LOS intersection deficiency: I-5 southbound ramps & Avd Pico under Scenarios 1 and 3.	Reconstruct intersection as part of ramp improvement listed below to provide separate southbound on-ramps from eastbound and westbound Avd Pico (traffic share = 21%).
Long-rang peak hour LOS ramp deficiency: I-5 northbound off-ramp at Avd Pico under Scenarios 1 and 3.	Add second drop lane from I-5 to the off-ramp (traffic share = 36%).
Long-range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Avd Pico under Scenarios 1 and 3.	Widen to a two-lane on-ramp (traffic share = 6%).
Long-range peak hour LOS ramp deficiency: I-5 southbound on-ramp at Avd Pico under Scenarios 1 and 3.	Provide separate on-ramps from eastbound and westbound Avd Pico (traffic share = 35%).

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Arterial Improvements Only Alternative	
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Crown Valley Pkwy under Scenario 3.	Implement at-grade improvement plan: add third eastbound and northbound left-turn lanes and provide eastbound free right-turn lane (traffic share = 11%). Or implement grade separated improvement plan: signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy (traffic share = 11%).
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Crown Valley Pkwy under Scenario 4.	Implement at-grade improvement plan: add fourth eastbound and westbound through lanes and third northbound, southbound, eastbound and westbound left-turn lanes, and provide westbound free right-turn lane (traffic share = 11%). Or implement grade separated improvement plan: signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy (traffic share = 11%).
Long range peak hour LOS intersection deficiency: Antonio Pkwy-La Pata Ave & Ortega Hwy under Scenario 4.	Implement at-grade improvement plan: add third eastbound and westbound through lanes and third southbound and westbound left-turn lanes, and provide northbound, southbound and westbound free right-turn lanes (traffic share = 5%). Or implement grade separated improvement plan: signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy-La Pata Ave (traffic share = 5%).
Long range peak hour LOS intersection deficiency: Antonio Pkwy & North River Rd under Scenario 3.	Add third southbound and westbound left-turn lanes (traffic share = 12%).
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Oso Pkwy under Scenarios 3 and 4.	Implement at-grade improvement plan: add fourth eastbound and westbound through lanes and third northbound, eastbound and westbound left-turn lanes, and provide northbound and westbound free right-turn lanes (traffic share = 16%). Or implement grade separated improvement plan: Signalized control of all intersection movements except northbound and southbound through traffic on Antonio Pkwy (traffic share = 16%).
Long range peak hour LOS intersection deficiency: Avd Empresa & Avd De Las Banderas under Scenarios 3 and 4.	Add second eastbound left-turn lane (traffic share = 2%).
Long range peak hour LOS intersection deficiency: Avd Empresa & Santa Margarita Pkwy under Scenarios 3 and 4.	Convert eastbound right-turn lane to a free right-turn lane and add northbound shared third left-turn lane/through lane (traffic share = 4%).

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Long range peak hour LOS intersection deficiency: Avd La Pata & Avd Pico under Scenarios 3 and 4.	Implement at-grade improvement plan: add third northbound through lane and second and third eastbound left-turn lanes, and provide westbound free right-turn lane (traffic share = 26%). Or implement grade separated improvement plan: signalized control of all intersection movements except eastbound and westbound through traffic on Avd Pico (traffic share = 26%).
Long range peak hour LOS intersection deficiency: Avd La Pata & Avd Vista Hermosa under Scenarios 3 and 4.	Add fourth southbound through lane, second southbound, eastbound and westbound left-turn lanes, and westbound right-turn lane (traffic share = 16%).
Long range peak hour LOS intersection deficiency: Felipe Rd & Oso Pkwy under Scenarios 3 and 4.	Add fourth eastbound and westbound through lanes and second southbound left-turn lane, and convert second northbound through lane to shared second through/second right-turn lane (traffic share = 4%).
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Avd Pico under Scenarios 3 and 4.	Add third eastbound through lane (traffic share = 8%).
Long range peak hour LOS intersection deficiency: I-5 southbound ramps & Avd Pico under Scenarios 3 and 4.	Add second westbound left-turn lane (traffic share = 13%).
Long range peak hour LOS intersection deficiency: Marguerite Pkwy & Jeronimo Rd under Scenario 4.	Add second northbound left-turn lane (traffic share = 6%).
Long range peak hour LOS intersection deficiency: SR 241 northbound ramps & Antonio Pkwy under Scenario 3.	Convert third westbound through lane to shared third through/second right-turn lane (traffic share = 3%).
Long range peak hour LOS intersection deficiency: SR 241 northbound ramps & Oso Pkwy under Scenarios 3 and 4.	Add third westbound through lane, second eastbound left-turn lane, and second eastbound right-turn lane (traffic share = 14%).
Long range peak hour LOS intersection deficiency: SR 241 southbound ramps & Oso Pkwy under Scenario 4.	Add third eastbound through lane (traffic share = 17%).
Long range peak hour LOS ramp deficiency: I-5 southbound on-ramp at Avd Pico under Scenarios 3 and 4.	Widen to a two-lane on-ramp (traffic share = 22%).
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Crown Valley Pkwy under Scenario 3.	Widen to a two-lane on-ramp (traffic share = 6%).
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Crown Valley Pkwy under Scenario 3.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 5%).
Long range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Ortega Hwy under Scenario 4.	Widen to a two-lane on-ramp or provide separate on-ramps from eastbound and westbound Ortega Hwy (traffic share = 5%).

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Oso Pkwy under Scenario 3.	Add second drop lane from I-5 to the off-ramp (traffic share = 2%).
Long range peak hour LOS ramp deficiency: SR 241 northbound on-ramp at Antonio Pkwy under Scenario 3.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 4%).
Long range peak hour LOS ramp deficiency: SR 241 southbound off-ramp at Antonio Pkwy under Scenarios 3 and 4.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 6%).
Long range peak hour LOS ramp deficiency: SR 241 northbound on-ramp at Oso Pkwy under Scenarios 3 and 4.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 18%).
Long range peak hour LOS ramp deficiency: SR 241 southbound off-ramp at Oso Pkwy under Scenario 4.	Widen ramp toll plaza to provide two cash (stopped) lanes and two FasTrak (unstopped) lanes (traffic share = 21%).
I-5 Widening Alternative	
Long range peak hour LOS intersection deficiency: Antonio Pkwy & Crown Valley Pkwy under Scenario 3.	Add fourth southbound through lane and third eastbound left-turn lane (traffic share = 2%).
Long range peak hour LOS intersection deficiency: Antonio Pkwy-La Pata Ave & Ortega Hwy under Scenarios 1 and 3.	Provide southbound free right-turn lane (traffic share = 2%).
Long range peak hour LOS intersection deficiency: Antonio Pkwy-La Pata Ave & Ortega Hwy under Scenario 4.	Convert second northbound through lane to shared second through/second right-turn lane (traffic share = 2%).
Long range peak hour LOS intersection deficiency: Cm Capistrano & San Juan Creek Rd under Scenario 4.	Convert second northbound through lane to shared second through/second right-turn lane (traffic share = 10%).
Long range peak hour LOS intersection deficiency: Cm Capistrano & Stonehill Dr under Scenario 1.	Add second eastbound through lane and northbound right-turn lane, and convert second southbound through lane to shared second through/second right-turn lane (traffic share = 8%).
Long range peak hour LOS intersection deficiency: Felipe Rd & Oso Pkwy under Scenario 4.	Add fourth eastbound through lane and second southbound left-turn lane, and convert second northbound through lane to shared second through/second right-turn lane (traffic share = 4%).
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Crown Valley Pkwy under Scenario 4.	Add fourth eastbound through lane (traffic share = 8%).
Long range peak hour LOS intersection deficiency: I-5 northbound ramps & Oso Pkwy under Scenario 1.	Add northbound shared second left-turn/second right-turn lane (traffic share = 4%).
Long range peak hour LOS intersection deficiency: Los Altos & Crown Valley Pkwy under Scenario 4.	Modify southbound approach to provide a left-turn lane and a shared through/right-turn lane and eliminate north/south split phasing (traffic share = 5%).
Long range peak hour LOS intersection deficiency: Marguerite Pkwy & Avery Pkwy under Scenario 4.	Add southbound right-turn lane (traffic share = 3%).

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Long range peak hour LOS intersection deficiency: Marguerite Pkwy & Crown Valley Pkwy under Scenario 1.	Add third northbound through lane and convert second southbound through lane to shared second through/second right-turn lane (traffic share = 2%).
Long range peak hour LOS intersection deficiency: Puerta Real & Crown Valley Pkwy under Scenario 4.	Convert southbound through lane to shared through/second right-turn lane (traffic share = 3%).
Long range peak hour LOS intersection deficiency: Rancho Viejo Rd & Ortega Hwy under Scenario 1.	Add third eastbound through lane (traffic share = 2%).
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Avd Pico under Scenario 1.	Widen to a two-lane on-ramp (traffic share = 5%).
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Avd Vista Hermosa under Scenario 1.	Widen to a two-lane on-ramp (traffic share = 4%).
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Avd Vista Hermosa under Scenario 1.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 16%).
Long range peak hour LOS ramp deficiency: I-5 northbound direct on-ramp at Crown Valley Pkwy under Scenarios 1, 3 and 4.	Widen to a two-lane on-ramp (traffic share = 9%).
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Crown Valley Pkwy under Scenarios 3 and 4.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 11%).
Long range peak hour LOS ramp deficiency: I-5 southbound off-ramp at Ortega Hwy under Scenarios 1, 3 and 4.	Add second auxiliary lane from I-5 to the off-ramp (traffic share = 9%).
Long range peak hour LOS ramp deficiency: I-5 northbound on-ramp at Stonehill Dr under Scenarios 1, 3 and 4.	Widen to a two-lane on-ramp (traffic share = 16%).
No Action Alternatives	
Scenario 1: 11 deficient segments of I-5 (El Camino Real to Junipero Serra Road and Oso Parkway to El Toro Road) 17 deficient freeway/tollway ramps (13 I-5 ramps and four SR 241 ramps) 41 deficient intersections (27 arterial-to-arterial and 14 arterial-to-freeway/tollway ramps)	None.
Scenario 3: 10 deficient segments of I-5 (El Camino Real to Junipero Serra Road and Oso Parkway to El Toro Road) 14 deficient freeway/tollway ramps (nine I-5 ramps and four SR 241 ramps) 27 deficient intersections (20 arterial-to-arterial and seven arterial-to-freeway/ tollway ramps)	None.

TABLE 8-1
SUMMARY OF DIRECT ADVERSE LONG TERM IMPACTS AND MITIGATION MEASURES FOR TRAFFIC AND CIRCULATION

Direct Adverse Impact and Impacted Scenarios (a)	Mitigation Measure (b) and Traffic Share Percentages
Potential for Cumulative Traffic Impacts	
No I-5 mainline segments in the study area are adversely impacted by the SOCTIIP build Alternatives. For the build Alternatives that include the FTC-S from Oso Parkway to I-5, no direct adverse impacts occur in the Alternatives with a FTC-S connection to I-5 via the Far East Corridor alignment (the FEC-M, FEC-W and A7C-FEC-M Alternatives), and direct adverse impacts occur at the CC Alternative with an FTC-S connection to I-5 via the Central Corridor alignment (the CC Alternative). For the build Alternatives that include the FTC-S from Oso Parkway to Avenida La Pata (the CC-ALPV and A7C-ALPV Alternatives), direct adverse impacts occur at 10 locations. For the build Alternatives that do not include the FTC-S toll road, direct adverse impacts occur at 19 locations under the I-5 Alternative and 24 locations under the AIO Alternative	

(a) The assumptions for each scenario are as follows:
Scenario 1: Committed circulation system with 14,000 DU proposed RMV plan.
Scenario 3: Buildout circulation system with 14,000 DU proposed RMV plan.
Scenario 4: Buildout circulation system with 21,000 DU OCP-2000 plan for RMV.

(b) Refer to Section 3.6 (Long Range Mitigation Measures) for detailed discussion of project mitigation.

Source: Austin Foust Associates (2003).

SECTION 9.0
LIST OF PREPARERS

SECTION 9.0
LIST OF PREPARERS

9.1 EIS/SEIR

9.1.1 FEDERAL HIGHWAY ADMINISTRATION

Maiser Khaled, Director, Project Development & Environment, California Division

Robert Cady, Field Operations Engineer, California Division

Mary Ann Rondinella, Environmental Program Specialist, California Division

Brett Gainer, Attorney, California Division

Jean Mazur, Air Quality Specialist, California Division

Stephanie Stoermer, Environmental Program Coordinator, California Division

Pamela Stephenson, Project Development Specialist, Headquarters

Mahfoud Licha, Project Development Engineer, California Division

Martha Nevai, Structural Engineer, California Division

Sarah Skeen, Structure/Research/TTEngineer, California Division

Layne Patton, Realty Specialist, California Division

9.1.2 CALTRANS DISTRICT 12 AND CALTRANS HEADQUARTERS

Lisa Ramsey, P.E., Senior Transportation Engineer, Branch Chief – Office of Toll Road Oversight, California Department of Transportation, District 12, Orange County. Bachelor of Science in Civil Engineering; 11 years experience in civil engineering.

Sylvia Vega, Office Chief of Environmental Planning, California Department of Transportation, District 12, Orange County. Bachelor of Science in Natural Resources Management; over 20 years experience planning, organizing and supervising environmental activities, including biological, cultural and engineering studies for public works projects.

Praveen Gupta, Branch Chief of Environmental Planning Branch A, California Department of Transportation, District 12, Orange County. Masters of Science in Architecture and Urban Design; over 30 years experience in various environmental planning projects, coastal planning and land planning.

Smita Deshpande, Branch Chief of Environmental Planning Branch C, California Department of Transportation, District 12, Orange County. Masters of Science in Regional Planning; over 10 years of experience in preparing, planning environmental documents for transportation planning projects.

Ryan P. Chamberlain, Associate Environmental Planner, California Department of Transportation, District 12, Orange County. Bachelor of Arts in Environmental Studies and Urban Planning; 6 years experience in environmental, transportation, and urban planning.

Jean Lafontaine, Associate Environmental Planner, California Department of Transportation, District 12, Orange County. Bachelor of Arts in Environmental Analysis and Design; 7 years experience in environmental planning.

9.1.3 TRANSPORTATION CORRIDOR AGENCY

James D. Brown, P.E. Director of Engineering and Planning, Task Leader, B.S. in Geology; over 26 years experience planning, organizing and supervising environmental, engineering and right-of-way functions for public works projects.

Macie Cleary-Milan, Deputy Director Environmental and Planning, BA in Social Ecology; 15 years experience in transportation and environmental planning.

Paul Bopp, Engineering Manager, BS in Geology, MS in Geotechnical Engineering, PhD in Geotechnical Engineering; 15 years experience in geotechnical engineering and engineering geology for civil engineering projects.

David Lowe, P.E., Deputy Director, Design and Construction, BS in Civil Engineering; 20 years experience in civil engineering, transportation planning, design and construction.

Terry Swindle, SR/WA, Deputy Director, Right-of-Way and Special Projects, IRWA Senior Right-of-Way Agent designation; 35 years experience in real estate valuation, property management, acquisition and relocation assistance.

Maria Levario, Consultant to the TCA, Environmental Manager, BS in Urban and Regional Planning, six years experience in environmental documentation and transportation planning.

Pete Ceisla, Principal Environmental Analyst, 10 years land use, transportation and environmental planning experience.

9.1.4 EIS/SEIR CONSULTANT (P&D Consultants, Inc.)

Christine Huard-Spencer, Project Manager, Principal, BA and MA in Geography, 25 years experience in CEQA and NEPA environmental documentation.

Michael Benner, Principal-in-Charge, BA in Biological Sciences and MS in Environmental Studies; 25 years experience in environmental documentation and biological evaluations.

Romi Archer, Assistant Project Manager and Senior Environmental Planner, BA in Urban Land Use; 11 years experience in environmental documentation.

Betty Dehoney, MS and BA in Biology, 23 years experience specializing in CEQA and NEPA analysis of biological resources and regulatory compliance.

Anne Pietro, BA in Sociology and MS in Landscape Architecture; eight years experience in transportation planning and environmental documentation.

Jennifer Hobbs, Environmental Scientist, BS in geography and BS in environmental studies; two years experience in GIS and one year experience in environmental science.

Mello Dee Hrdlicka, Biologist and Environmental Analyst, BS in Biological Sciences; three years experience with identification, tagging and tracking of endangered species, San Bernardino kangaroo rat State [10(a)(1)(a)] and federal permits and MOU.

Vaidas Sekas, Environmental Analyst, BS and MS in Urban and Regional Planning; four years experience in environmental and city planning with emphasis on GIS.

Jerry Flores, Environmental Analyst, BS in Urban and Regional Planning; five years experience in environmental documentation.

Debra Leight, Environmental Analyst, BA in Environmental Analysis and Design; 3.5 years experience in environmental documentation.

Amanda Duchardt, Research Analyst, BS in Biology; one year experience in environmental documentation.

Jeff Post, Graphic Artist, BA in Graphic Design; 15 years experience in graphic design in support of transportation projects and environmental documentation.

9.2 PREPARERS OF THE TECHNICAL STUDIES

9.2.1 AIR QUALITY TECHNICAL REPORT (Mestre Greve Associates)

Fred Greve, P.E., Task Leader, Principal-in-Charge, BS in Civil and Environmental Engineering, BS in Biological Sciences and MS in Environmental Engineering; 25 years experience in all aspects of air quality and noise assessments.

Tanya Moon, Air Quality Analyst, BS in Electrical Engineering; over 12 years experience in air quality and noise assessments.

9.2.2 GEOTECHNICAL, GEOLOGY AND SOILS TECHNICAL REPORT (GeoPentech, Inc.)

John Waggoner, Task Leader, Principal Geologist, BA in Earth Science; over 20 years experience in geology, engineering geology and seismic geology, for civil engineering projects.

Yoshi Moriwaki, Principal Geotechnical Engineer, BS in Civil Engineering, MS in Engineering Mechanics, PhD in Geotechnical Engineering; over 30 years experience in geotechnical engineering and earthquake engineering for civil engineering projects.

9.2.3 HAZARDOUS MATERIALS AND WASTES TECHNICAL REPORT (P&D Consultants, Inc.)

Robert Olsen, Task Leader, Senior Geologist, BS and MS in Geology, 12 years experience in environmental documentation.

Christine Huard-Spencer, Principal and Project Manager.

Romi Archer, Assistant Project Manager and Senior Environmental Planner.

Robert Price, Environmental Planner, BS in Zoology; 22 years experience in environmental documentation (no longer with P&D).

Tin Cheung, Environmental Scientist, B.A in Environmental Science and Geography; seven years experience in environmental documentation.

Gretchen Head, Environmental Scientist, B.A. in Environmental Studies; one year experience in environmental documentation (no longer with P&D).

Sophia Habl, Environmental Analyst, B.A. in Geography; one year experience in environmental documentation.

9.2.4 HISTORIC PROPERTY SURVEY REPORT (Greenwood and Associates)

John M. Foster, Project Manager, B.A., Anthropology, M.A. program, Anthropology, SOPA/RPA; 33 years experience in California archaeology and cultural resources.

Roberta S. Greenwood, Principal Investigator, A.B., Economics, Ph.D. program, Anthropology, SOPA/RPA, 43 years experience in cultural resource management.

Dana N. Slawson, Architectural History and History, B.A., Anthropology, M.A., Architecture; 20 years experience in architectural history, history, and archaeology.

James J. Schmidt, Archaeologist, A.A., Journalism, B.A., Anthropology; 18 years of experience in California archaeology.

Alice Hale, Archaeologist, A.A., B.A., Psychology, M.A., Psychology, M.A., Anthropology; 15 years of experience in California archaeology.

9.2.5 HYDROLOGY TECHNICAL REPORT

9.2.5.1 P&D Consultants, Inc.

Christine Huard-Spencer, Project Manager and Principal.

9.2.5.2 Psomas

Alex Menez, P.E. Project Engineer, BS in Civil Engineering; over five years experience in surface water resources.

Ken Susilo, P.E. Task Leader, Senior Project Manager, BS and MS in Civil Engineering; over 12 years experience in all aspects of surface water resources.

Bill Whittenberg, P.E. DEE Project Manager, BS and MSCE in Environmental Engineering; over 26 years experience in water resources.

Soorgul Wardak, P.E. Project Engineer, BS, MS, PhD in Civil Engineering; over 20 years experience in surface water resources.

Lisa Stromme, P.E. Project Engineer, BS in Environmental Resources Engineering; over four years experience in surface water resources.

Melissa Lane, Project Engineer.

Brad Hartman, Project Engineer.

9.2.6 LAND USE TECHNICAL REPORT

9.2.6.1 P&D Consultants, Inc.

Romi Archer, Task Leader, Assistant Project Manager and Senior Environmental Planner.

Christine Huard-Spencer, Principal and Project Manager.

Ann Reynolds, Environmental Analyst, BS in Forestry and Natural Resources; four years experience in environmental documentation and biological evaluations.

Mello Dee Hrdlicka., Biologist and Environmental Analyst.

Warren Sprague, Senior Economist, BA in Geography and Environmental Studies and M.PL, Planning, over 18 years experience in aviation planning and forecasting and economic analyses.

Gretchen Head, Environmental Analyst.

Jeff Post, Graphic Artist.

Michael Benner, Principal-in-Charge.

Vaidas Sekas, Environmental Analyst.

9.2.6.2 Psomas

Daniel McCrosky, Task Leader Geographic Information Systems (GIS), BS in Surveying and Photogrammetry; 10 years experience in surveying and mapping with an emphasis on digital mapping, CAD design and GIS integration.

Howard Hahn, Visual Analysis/GIS Support, MS in Landscape Architecture; 17 years experience in visual analysis and visual simulation; three years experience in GIS analysis.

9.2.7 LOCATION HYDRAULICS STUDIES TECHNICAL REPORT

9.2.7.1 P&D Consultants, Inc.

Michael Benner, Principal-in-Charge.

Romi Archer, Assistant Project Manager and Senior Environmental Planner.

9.2.7.2 Psomas

Ken Susilo, P.E. Task Leader, Senior Project Manager.

Bill Whittenberg, P.E. DEE Project Manager.

Novin Rashedi, PH CEPSC Project Manager, BS and MS in Water Science; over 20 years experience in surface water resources.

Alex Menez, P.E. Project Engineer.

Soorgul Wardak, P.E. Project Engineer.

Lisa Stromme, P.E. Project Engineer.

Rob Johnson, Environmental Scientist, BS in Biology and MS in Environmental Studies; over 20 years experience in biological resources.

Kim Alexander, P.E. Project Engineer, BS in Civil Engineering and MS in Environmental Engineering; over eight years experience in groundwater resources.

9.2.8 MILITARY IMPACTS TECHNICAL REPORT (P&D Consultants, Inc.)

Tom McKerr, Task Leader, Manager Assessments, BA in Chemistry, 30 years experience in hazardous response, Commander, United States Coast Guard (ret) (no longer with P&D).

Romi Archer, Assistant Project Manager and Senior Environmental Planner.

Christine Huard-Spencer, Principal and Project Manager.

Michael Benner, Principal-in-Charge.

9.2.9 NATURAL ENVIRONMENT STUDY

9.2.9.1 P&D Consultants, Inc.

Betty Dehoney, Biology Task Leader.

Christine Huard-Spencer, Project Manager and Principal.

Michael Benner, Principal-in-Charge.

Shelly Feeney Austin, Biologist, MS in Forestry, BS in Biological Sciences; eight years experience specializing in plant ecology and taxonomy.

Doug Willick, Biologist, AA in Wildlife Management; 15 years experience specializing in ornithology. Permitted for California gnatcatcher, southwestern willow flycatcher and least Bell's vireo.

Sal Zimmitti, Biologist, MS and BA in Ecology; nine years of experience, specializing in biological assessment and focused surveys, 38 hours of wetlands delineation training. Permitted (No. TE021544-0) for listed fairy shrimp, arroyo toad and quino checkerspot butterfly.

Jeff Crain, Biologist, BS in Biological Sciences; six years experience specializing in plant ecology and taxonomy.

Carol Hertzog, Biologist, BS in Biology, BS in Physiology; seven years experience conducting general and focused biological surveys. Permitted for California gnatcatcher and Quino checkerspot butterfly (no longer with P&D).

Scott Holbrook, Biologist, BA in Applied Ecology; 10 years experience specializing in CEQA regulatory compliance (no longer with P&D).

Mello Dee Hrdlicka, Biologist and Environmental Analyst.

9.2.9.2 Glenn Lukos Associates

Glenn Lukos, Task Leader, Biologist, PhD in Aquatic Ecology (in progress), MS in Limnology and Aquatic Biology, BS in Interdisciplinary Studies; over 20 years experience in wetland ecology, identification and regulations.

Jeff Ahrens, Biologist, MS in Environmental Studies (in progress), BS in Biology; seven years experience specializing in wildlife ecology, conducting focused surveys for least Bell's vireo, California gnatcatcher, red-legged frog and arroyo toad, and wetlands delineations.

Tony Bomkamp, Biologist, MS in Environmental Studies, BA in Biology; over 25 years experience in southern California botany and plant communities and 12 years experience in wetland ecology, identification and functional assessment. Permitted for listed branchiopods throughout California and presence/absence surveys for California gnatcatcher.

Ingrid Chlup, Biologist, MS in Environmental Studies (in progress), BS in Biology; one year experience specializing in ecology, wetlands delineations and functional assessments.

David Moskovitz, Biologist, MS (in progress) and BS in Biology; over five years experience in plant ecology, field botany and wetlands delineation.

Sara Young, Biologist, MS and BS in Soil Science; over eight years experience in soil mapping, identification and analysis with an emphasis on hydric soils and wetlands.

9.2.9.3 Brown-Berry Consulting

Robert Berry, Biologist, PhD, MS and BA in Engineering; 21 years experience in bat surveys, specializing in acoustic analysis of bat calls.

Patricia Brown, Biologist, PhD in biology, BA in Zoology; 33 years experience in bat surveys, specializing in echolocation and field identification of bats.

9.2.9.4 SJM Biological Consultants

Stephen J. Montgomery, Task Leader, Biologist, MS in Biology/Ecology, BS in Wildlife Biology; over 25 years experience with ecological studies of southern California endangered and sensitive small mammal and bird species. Permitted for Pacific pocket mouse, Stephens' kangaroo rat, San Bernardino Merriam's kangaroo rat and California gnatcatcher.

Shana Dodd, Biologist, MS in Conservation Biology, BA in Biology; 12 years experience with general wildlife studies and small mammal research.

9.2.9.5 White & Leatherman Biological Services

Brian Leatherman, Biologist, MA and BA in Biology; eight years experience in bird surveys, herptofauna and mammals. Permitted for California gnatcatcher, southwestern willow flycatcher and Quino checkerspot butterfly.

9.2.9.6 Psomas

David Moore, Biologist, BS from Colorado State University; four years technical and management experience in wildlife management, fisheries and NEPA document preparation.

9.2.9.7 Independent and Other Consultants

Ann Johnston, BonTerra Consulting, Principal of Biological Services, BA in Biology, 14 years experience in sensitive biological resource inventories, endangered species surveys, general wildlife and plant biology, mitigation monitoring, habitat evaluations and biological resources environmental documentation.

Peter Bloom, Biologist, MS in biology, BS in Zoology; over 30 years experience in southwestern California ornithology, herpetology, mammalogy and botany. Permitted for California gnatcatcher and southwestern willow flycatcher.

Jeff Kidd, Biologist, BS in Wildlife Biology (in progress), AS in Environmental Science; eight years experience. Permitted for Quino checkerspot butterfly and raptors, and subpermit for California gnatcatcher and arroyo toad.

Chris Niemela, Biologist, MS (in progress) and BS in Wildlife Biology; seven years experience. Subpermit for arroyo toad.

James Pike, Biologist, 10 years experience in bird surveys including California gnatcatcher, southwestern willow flycatcher and least Bell's vireo.

Stephanie Remington, Biologist, MS in Biology, BA in Zoology; five years experience in bat surveys, MS thesis on bats of Orange County.

Camm Swift, Biologist, PhD and MA in zoology, BA in Biology; 22 years experience, specializing in ichthyology. Permitted for tidewater goby, red-legged frog and arroyo chub.

9.2.10 NOISE ASSESSMENT REPORT (Mestre Greve Associates)

Matthew Jones, Team Leader, E.I.T., BS in Electrical Engineering; over 15 years experience in acoustics and noise assessment.

Fred Greve, P.E., Principal-in-Charge.

James Spencer, Ph.D., Project Engineer, BS in General Engineering, MS in Civil and Environmental Engineering, and Ph.D. in Geophysics; over 20 years experience in laboratory measurements and acoustics.

9.2.11 PALEONTOLOGICAL RESOURCES TECHNICAL REPORT (SWCA Environmental Consultants)

Cara L. Corsetti, Task Leader, Program Director of Paleontology, BA in Interdisciplinary Studies with Emphasis in Biology and Geology and MS in Geology (pending); four years experience in paleontology.

Cara L. Burres-Jones, Team Leader, Orange County Certified Paleontologist, BA and MA in Biology (MA with Emphasis in Vertebrate Paleontology); 14 years experience in vertebrate paleontology (no longer with SWCA).

Bronwyn K. Kelly, Project Manager of Paleontology, BS and MS in Geology; four years experience in paleontology.

Travis Douthit, GIS Specialist, BS in Geography with a Minor in Rangeland Ecology and Management; six years experience in GIS mapping and analysis.

9.2.12 PHASE I ARCHAEOLOGICAL INVENTORY (Greenwood and Associates)

John M. Foster, Project Manager.
Roberta S. Greenwood, Principal Investigator.
Dana N. Slawson, Architectural History and History.
James J. Schmidt, Archaeologist.
Alice Hale, Archaeologist.

9.2.13 PHASE I HISTORIC RESOURCES EVALUATION REPORT (Greenwood and Associates)

John M. Foster, Project Manager.
Roberta S. Greenwood, Principal Investigator.
Dana N. Slawson, Architectural History and History.
James J. Schmidt, Archaeologist.
Alice Hale, Archaeologist.

9.2.14 PROJECT ALTERNATIVES TECHNICAL REPORT

9.2.14.1 P&D Consultants, Inc.

Michael Benner, Principal-in-Charge.
Romi Archer, Assistant Project Manager and Senior Environmental Planner.
Christine Huard-Spencer, Principal and Project Manager.

9.2.14.2 Austin-Foust Associates

Terry Austin, Task Leader, Principal-in-Charge.
Kendall Elmer, Project Manager.

9.2.15 PUBLIC SERVICES AND UTILITIES TECHNICAL REPORT

9.2.15.1 P&D Consultants, Inc.

Anne Pietro, Task Leader.
Christine Huard-Spencer, Principal and Project Manager
Michael Benner, Principal-in-Charge.
Ann Reynolds, Environmental Analyst.
Sophia Habl, Environmental Analyst.
Mello Dee Hrdlicka, Biologist and Environmental Analyst.
Jennifer Hobbs, Environmental Scientist.
Jeff Post, Graphic Artist.

Norm Van Winkle, Designer; eight years experience in Computer Aided Design (CAD) in support of transportation and environmental documentation (no longer with P&D)

9.2.15.2 Other Consultants

Brian Pearson, P.E., design, Corridor Design Management Group
Tom Schroeder, P.E., design, Corridor Design Management Group
Mike Howard, SR/WA, Manager, Right-of-Way and Utilities, BBA in Business; 35 years experience in government right-of-way.
Don Roberson, Senior Program Manager; 35 years experience in water resources and waste water planning, construction and administration (wet utilities).
Marty Peterson, Senior Project Manager; 20 years experience in utility consulting and construction industries (dry utilities), Utility Specialists, Inc.

9.2.15.3 Psomas

Daniel McCrosky, GIS.
Duane Haselfeld, GIS.

9.2.16 RECREATION RESOURCES TECHNICAL REPORT

Romi Archer, Task Leader, Assistant Project Manager and Senior Environmental Planner.
Christine Huard-Spencer, Principal and Project Manager
Jennifer Hobbs, Environmental Scientist.

9.2.17 RELOCATION IMPACTS TECHNICAL REPORT (P&D Consultants, Inc.)

Warren Sprague, AICP, Task Leader.

Jerry Flores, Environmental Analyst.
Gretchen Head, Environmental Scientist.
Mello D. Hrdlicka, Biologists and Environmental Analyst.

9.2.18 RIGHT-OF-WAY COST ESTIMATES TECHNICAL REPORT

9.2.18.1 P&D Consultants, Inc.

Warren Sprague, AICP, Task Leader.
Jerry Flores, Environmental Analyst.

9.2.18.2 Corridor Design Management Group

Brian Pearson, P.E., design.
Tom Schroeder, P.E. design.
Mike Howard, SR/WA, utilities.

9.2.18.3 Psomas

Daniel McCrosky, GIS.
Duane Haselfeld, GIS.

9.2.19 RUNOFF MANAGEMENT PLAN (Psomas)

Ken Susilo, P.E. Task Leader, Senior Project Manager.
Bill Whittenberg, P.E. DEE Project Manager.
Novin Rashedi, PH CEPSC Project Manager.
Alex Menez, P.E. Project Engineer.
Soorgul Wardak, P.E. Project Engineer.
Lisa Stromme, P.E. Project Engineer.
Rob Johnson, Environmental Scientist.
Kim Alexander, P.E. Project Engineer.

9.2.20 SOCIOECONOMICS AND GROWTH INDUCING IMPACTS TECHNICAL REPORT

9.2.20.1 P&D Consultants, Inc.

Warren Sprague, AICP, Task Leader.
Jerry Flores, Environmental Analyst.
Gretchen Head, Environmental Analyst.
Mello Dee Hrdlicka, Biologist and Environmental Analyst.
Jeff Post, Graphic Artist.

9.2.20.2 Corridor Design Management Group

Brian Pearson, P.E., design.
Tom Schroeder, P.E., design.
Mike Howard, SR/WA, utilities.

9.2.20.3 Psomas

Daniel McCrosky, GIS.
Duane Haselfeld, GIS.

9.2.21 TRAFFIC AND CIRCULATION TECHNICAL REPORT (Austin-Foust Associates, Inc.)

Terry Austin, Task Leader, Principal-in-Charge, BE in Civil Engineering, MS in Transportation, BS in Mathematics, MBA in Administration; over 30 years experience in all aspects of transportation planning.

Kendall Elmer, Project Manager, BS in Civil Engineering; over 18 years experience in transportation planning.

Phong Le, Transportation Analyst, BS in Mathematics; over 12 years experience in transportation planning and traffic modeling.

Ida Chan, Transportation Analyst, BS in Civil Engineering; four years experience in transportation planning.

Charlie Ho, Transportation Analyst, BS in Civil Engineering; four years experience in transportation planning.

9.2.22 VISUAL IMPACT ASSESSMENT TECHNICAL REPORT

9.2.22.1 P&D Consultants, Inc.

Anne Pietro, Task Leader.
Christine Huard-Spencer, Project Manager and Principal.
Michael Benner, Principal-in-Charge.
Jeff Post, Graphic Artist.

9.2.22.2 Corridor Design Management Group

Brian Pearson, P.E., Project Director, BS and MS in Civil Engineering; 35 years experience in transportation planning, design and construction.

Tom Schroeder, P.E., Senior Highway Engineer, BS in Civil Engineering; 30 years experience in transportation planning, design and construction.

9.2.22.3 Psomas

Daniel McCrosky, Task Leader Geographic Information Systems (GIS).
Howard Hahn, Visual Analysis/GIS Support.

9.2.23 POTENTIAL IMPACTS OF ALTERNATIVE TRANSPORTATION CORRIDORS ON WATERS OF THE UNITED STATES AND RIPARIAN ECOSYSTEMS FOR THE SOUTH ORANGE COUNTY TRANSPORTATION INFRASTRUCTURE IMPROVEMENT PROJECT

R. Daniel Smith, Task Leader, US Army Engineer Research and Development Center, Waterways Experiment Station.

9.3 CONFLICT OF INTEREST

Consistent with the intent of the 1992 Memorandum of Agreement (MOA) between FHWA and the United States Marine Corps (USMC), the Transportation Corridor Agencies (TCA) has required all consultants working on the EIS/SEIR for the SOCTIIP to provide a conflict of interest statement indicating that the consultant (firm or individual, as appropriate) "...does not have any financial or other interest in the outcome of this project, in accordance with the Council on Environmental Quality NEPA Regulations, 40 Code of Federal Regulations (C.F.R.), Section 1506.5(c) (1999)..." and that the consultant "...does not have any agreement, enforceable promise, or guarantee to provide any future work on this project." Signed conflict of interest statements for the consultants who prepared the EIS/SEIR and the technical studies are on file at the TCA offices.

SECTION 10.0
DISTRIBUTION LIST FOR THE DRAFT EIS/SEIR

SECTION 10.0
DISTRIBUTION LIST FOR THE DRAFT EIS/SEIR

10.1 FEDERAL AGENCIES

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Nova Blazej
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San Francisco, CA 94105

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Headquarters U.S. Marine Corps
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2 Navy Annex
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Larry Rannals
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10.2 STATE AGENCIES

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10.3 REGIONAL AGENCIES AND SPECIAL DISTRICTS

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10.4 LOCAL AGENCIES AND CITIES

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Lake Forest, CA 92630

City Manager
City of Mission Viejo
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Mission Viejo, CA 92691

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Dana Point, CA 92629

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City of Orange
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Orange, CA 92663

City Manager
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Anaheim, CA 92805

City Manager
City of Yorba Linda
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National Audubon Society
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Trabuco Canyon, CA 92678

Surfrider Foundation
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San Clemente, CA 92672

Friends of the Foothills
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10.6 BUSINESSES, BUSINESS GROUPS AND MAJOR LAND OWNERS

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San Clemente, CA 92673

Forester Ranch
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San Clemente, CA 92673

10.7 LIBRARIES

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Mission Viejo, CA 92691

Laguna Niguel Library
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Laguna Niguel, CA 92677

San Juan Capistrano Regional Library
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San Juan Capistrano, CA 92675

Oceanside Library
330 North Coast Highway
Oceanside, CA 92054

Canyon Hills Library
400 Scout Trail
Anaheim Hills, CA 92807

Santa Ana Library
26 Civic Center Plaza
Santa Ana, CA 92701

Garden Grove Regional Library
11200 Stanford Avenue
Garden Grove, CA 92840

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

Laguna Woods Library
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Laguna Woods, CA 92653

Dana Point Library
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Irvine Heritage Library
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Anaheim Central Library
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Ladera Ranch Library
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Laguna Beach Library
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San Clemente Library
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Orange Library
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Yorba Linda Library
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SECTION 11.0
COMMENTS AND COORDINATION

SECTION 11.0
COMMENTS AND COORDINATION

11.1 OBJECTIVES OF PUBLIC INVOLVEMENT

The public has been involved in the planning process for the Foothill Transportation Corridor – South (FTC-South) since the early 1980s when the corridor was considered for inclusion on the County of Orange Master Plan of Arterial Highways (MPAH). Even before that time there were a number of planning studies, such as the Southeast Orange County Transportation Study, the Northeast Orange County Transportation Study and the Multi-Modal Transportation Study, that identified the need for a high-speed corridor along the foothill area. All these early studies solicited input from the public, agencies and local jurisdictions. It has been this input from citizens, businesses, affected government bodies and interested parties that has been used to define and address public concerns throughout the FTC planning process.

The public involvement programs that have been implemented throughout the planning process for the FTC have been multi-purpose. The primary focus of the public involvement has been to (1) inform the public and agencies of the ongoing planning process and the results of the technical studies that have been conducted, (2) solicit the public's and agencies' concern and seek information regarding resources that would be affected by the project, and (3) utilize the concerns and feed back from item 2 to improve the project, reduce impacts and inform the design-making process. Measures have been taken to incorporate the concerns of individuals, interest groups, and agencies to develop the most effective project in meeting the circulation needs of Orange County while protecting resources, to the extent feasible.

The following Sections describe the public information and environmental process from the early 1980s through the present time.

11.2 HISTORY OF PUBLIC INVOLVEMENT

Environmental Impact Report (EIR) 123 (County of Orange, 1981) was prepared to address the impacts associated with the corridor as part of the County of Orange MPAH process to add the corridor to the MPAH. In conjunction with the EIR preparation and review process, a public participation program was conducted to integrate community concerns and ensure broad citizen awareness of the project. The public and appropriate agencies were notified of the project through the distribution of the Notice of Preparation (NOP) on November 19, 1980, which solicited input as to the appropriate scope and focus of the EIR. A total of 21 responses to the NOP were received from various agencies and organizations. These comments focused on air quality, traffic, biological resources, growth inducement and the associated impacts on schools, consistency with regional planning efforts, and compatibility with land use patterns. Public workshops were held at various locations in northeast and southeast Orange County. The EIR was distributed for public review, and 32 comments from agencies and the public were received. Planning Commission hearings were held on June 23 and July 21, 1981. The Board of Supervisors heard the item in August 1981. At all of these hearings, public testimony was taken. EIR 123 was certified as final by the Board of Supervisors on August 26, 1981 (Resolution No. 81-1279).

The Final EIR includes detailed discussion of the public involvement program for EIR 123 and copies of comments received from the public and agencies.

11.3 PHASE I STUDIES OF PUBLIC INVOLVEMENT

In 1985, the County of Orange initiated an Alternatives Alignment Analysis process for the FTC, previously called the Cristianitos segment of the FTC. The public scoping process was a key component of the analysis. The purpose of the scoping phase was to gather data, develop alternatives and prepare a comparative analysis for all the corridor alternatives. A wide array of alternatives was considered at this early phase of the project as shown in Figure 11.3-1. Figures and tables cited in this Section are provided following the last page of text in this Section.

The public scoping process for FTC was initiated on February 20, 1986, with a public information forum held at San Clemente High School. The purpose of this meeting was to introduce the project to the public and receive input on their concerns. At this meeting, an alternative was recommended for the vicinity of La Pata Avenue that connected with I-5 at Avenida Pico. This alternative became known as the BX Alternative.

Formal scoping meetings were held on April 16, 1986, in San Juan Capistrano and April 24, 1986, in San Clemente. These meetings were noticed in the Orange County Register on April 3, 1986. Three primary concerns were raised at these meetings. One concern was the impact on existing development from the alternatives in the vicinity of San Juan Creek and La Pata Avenue, or those that connect with I-5 at Avenida Pico. Another concern dealt with the biological impacts that would result from corridor construction, especially with the more easterly alternatives. The potential growth inducing impacts of the corridor were also a concern. Additional scoping meetings were held by Caltrans on July 9 and 15, 1986. The same concerns were identified at the Caltrans' scoping meetings.

In addition to the formal scoping meetings, there were numerous meetings with representatives of Marine Corps Base (MCB) Camp Pendleton, the affected cities, landowners, state and federal agencies, and public interest groups. During the scoping process, six meetings (November 20, 1985, and January 22, and March 19, May 28, July 23 and September 3, 1986) were held with a technical advisory group consisting of state, federal and local agencies and the major landowners in the area. In addition, newsletters were sent on December 11, 1985, and February 1 and March 28, 1986, to approximately 700 people who had expressed an interest in the study.

Briefing meetings were held with MCB Camp Pendleton on October 30, 1985, and July 15, 1986, to review the status of the project and the interface with military operations. On August 29, 1985, the County of Orange had a briefing meeting with the County of San Diego and the San Diego Association of Governments (SANDAG) staff. Additionally, throughout this process there were various presentations on the project to staff of the local agencies, Chambers of Commerce and community groups.

The results of the scoping analysis were presented in two documents: the Foothill Transportation Corridor Cristianitos Segment Environmental Baseline Study (County of Orange, September 1,

1986) and the Foothill Transportation Corridor Alternative Alignment Analysis Cristianitos Segment (Michael Brandman Associates, September 1986). There reports were distributed for review by public agencies, land owners, lease holders of affected properties, and interest groups. The project was presented at a public hearing, before the Orange County Planning Commission on October 15, 1986, and the Orange County Board of Supervisors on November 5 and 19, 1986. The TCA Board of Directors held a public hearing on November 13, 1986. These hearings were noticed in the Orange County Register on October 3, 1986. Based on these reports and public testimony in November 1986, the Orange County Board of Supervisors and TCA selected four primary alternatives for further study.

Anticipating that an EIS/EIR would be prepared immediately following the completion of the Alternatives Alignment Analysis, an NOP was distributed to agencies and interested parties on June 9, 1986, and a Notice of Intent was published in the Federal Register on June 4, 1986. A detailed briefing paper was distributed to 75 federal, state and regional organizations on June 18, 1986. Subsequently, it was decided to delay the federal environmental process to allow resolution of local issues. As a result, an EIR pursuant only to CEQA was prepared to identify the locally preferred alternative.

11.4 PHASE II PUBLIC INVOLVEMENT

11.4.1 TCA EIR NO. 3

An NOP for TCA EIR 3 was distributed on December 6, 1989. Twenty agencies and public groups responded to the NOP. A full range of concerns was raised including land use, traffic, public services and utilities, open space and recreation, biological resources, military impacts, hydrology, noise and air quality.

TCA Draft EIR 3 was released for public review on August 9, 1990, and the public review period ended October 9, 1990. Notices of Availability (NOA) were published in the Orange County Register and the Los Angeles Times on August 9, 1990, and posted at the Counties of Orange and San Diego and San Clemente City Hall; notice of the September 10, 1990, public meeting in the City of San Clemente was distributed to approximately 12,000 residents; and notices of the TCA Board of Directors' public hearing was published in the Orange County Register and the Los Angeles Times on November 14, 1990. The Draft EIR was distributed to local, state and federal agencies, and a NOA was sent to property owners within 91.44 meters (300 feet) of the corridor in August 1990.

The TCA held a public meeting on September 10, 1990, at the City of San Clemente Community Center to receive comments and answer questions pertaining to Draft EIR 3. Approximately 400 individuals were in attendance. The City of San Clemente Planning Commission meeting on October 2, 1990, and the City Council meeting on October 3, 1990, offered residents additional opportunities to comment on Draft EIR 3.

Numerous comments on Draft EIR 3 were received. Written responses to the comments were circulated for public review in June 1991. The primary areas of concern raised during the public

review process were: natural resources, alternatives, traffic, parkland and open space impacts, hydrology/water quality, land use impacts, growth inducement, noise and aesthetics.

In response to concerns raised over the design of the Alignment identified in Draft EIR 3, modifications were incorporated, including the inclusion of wildlife crossings at key locations. Additionally, the TCA formed a C Alignment Committee composed of representatives of the TCA, the City of San Clemente, MCB Camp Pendleton and the State Department of Parks and Recreation. The purpose of the committee was to discuss modifications to the C Alignment that could meet the goals of each agency. This committee developed a Modified C Alignment, which shifted the alignment through San Onofre State Beach (SOSB). In addition, a portion of the alignment was placed below grade (below Cristianitos Road) in the vicinity of San Clemente residences. A Draft Supplemental EIR was prepared to address these modifications to the C Alignment along with the responses to comments on the Draft EIR 3. Notice of availability of the draft supplemental EIR and response to comments was distributed by first class mail. The notice of availability was published in the Orange County Register and Los Angeles Times and posted with both San Diego and Orange County Clubs, on July 1, 1991. On October 10, 1991, the TCA Board of Directors adopted the Modified C Alignment as the locally preferred alternative and certified the EIR as adequate.

On November 9, 1991, a lawsuit was filed pertaining to the adequacy of the EIR prepared for the project. The petitioners included San Clementeans Against Toll Roads, Inc., Defenders of Wildlife and the Sierra Club. As a result of the lawsuit, the TCA and the petitioners entered into a stipulated agreement that outlined studies to be included in the subsequent federal environmental documentation, general methodology guidelines and review processes. These provisions are addressed in the EIS/SEIR.

11.4.2 OTHER AGENCY COORDINATION

Throughout the development of TCA EIR 3, there was extensive coordination with a number of federal, state and local agencies. Though not a federal document, Caltrans participated in all the project development team meetings on the project and there were a number of meetings with FHWA to review the permitting and documentation requirements for an EIS/SEIR on the project. In addition to the regular coordination, such as the NOP data gathering meetings and extensive correspondence, and the C Alignment Committee, there were other coordination meetings with the following interested agencies:

County of Orange. Three meetings between 1988 and early 1990 to discuss impacts to regional parks, cultural resources and air quality issues.

United States Fish and Wildlife Service. One meeting in 1988 to discuss biological resource analysis needs.

California Department of Fish and Game. One meeting in 1988 to discuss biological resource analysis needs.

California Department of Parks and Recreation. Two meetings between 1988 and 1990 to discuss impacts to SOSB.

MCB Camp Pendleton. Seven meetings between 1989 and 1990 to discuss impacts to the Base.

City of San Clemente. Two meetings in 1989 to discuss traffic issues and other impacts on the City.

City of San Juan Capistrano. One meeting in 1990 to discuss the City's concerns regarding the FTC-South.

United States Environmental Protection Agency. One meeting in 1990 to discuss air quality issues.

Southern California Association of Governments. One meeting in 1990 to discuss air quality issues.

11.5 PHASE II PUBLIC AND AGENCY INVOLVEMENT FOR THE EIS/SEIR (PRE-SOCTIIP)

11.5.1 COOPERATING AGENCIES AND THE NEPA/SECTION 404 INTEGRATION PROCESS

In compliance with 40 CFR 1501.6, FHWA sent letters on August 31, 1993 requesting that USFWS, EPA, ACOE and the California Coastal Commission (CCC) be cooperating agencies on the project. EPA and CCC declined to be cooperating agencies. While USFWS declined to be a cooperating agency, they expressed an interest in remaining involved in the preparation of the EIS/SEIR through the NEPA/Section 404 Integrated Process. Additionally, there was early coordination with the MCB Camp Pendleton regarding their involvement in the EIS/SEIR process. MCB Camp Pendleton is a cooperating agency on the project and entered into a MOU with FHWA regarding the preparation of the EIS/SEIR.

The NEPA/Section 404 Integration Process MOU was executed during 1993 and 1994 among FHWA, Caltrans, EPA, ACOE, USFWS and National Marine Fisheries Service (NMFS) on the processing of transportation projects to ensure that the requirements of NEPA and the Clean Water Act are met. The agencies entered into an MOU outlining provisions that needed to met at various stages of the process. As part of the NEPA/Section 404 Integration Process, FHWA has coordinated with USFWS, ACOE, EPA and NMFS on the project. On December 6, 1996 a letter was sent to the participating agencies that outlined the status of NEPA/Section 404 Integration Process as it relates to FTC-South. At that time, the agencies were requested to concur with the purpose and need for the project and alternatives. In response to concerns raised further coordination followed. On May 19, 1997 further supporting documentation was transmitted to the agencies. A field trip with agency representatives to review the project study area was held on May 30, 1997. Further follow up meetings were held. Concurrence was achieved among the agencies and the purpose and need statement was finalized on March 26, 1999.

11.5.2 SCOPE OF WORK FOR THE EIS/SEIR

FHWA and Caltrans coordinated with interested agencies and the petitioners from the lawsuit on TCA EIR 3 on the scope of work for the EIS/SEIR. The draft scope of work was distributed to the members of the Foothill South Advisory Committee (FSAC) and the petitioners (discussed later in this Section) for review and comment. Once the comments were received, revisions to the scope of work were made. A meeting was held on June 28, 1995 with the FSAC to review the proposed final scope of work for the EIS/SEIR. This scope of work was approved by the TCA Board of Directors on July 13, 1995. The scope of work was updated and expanded in 1999 and 2000 for the SOCTIIP EIS/SEIR.

11.5.3 SCOPING FOR THE EIS/SEIR

FHWA used a number of methods to elicit input from public agencies, organizations and individuals on the scope of the EIS/SEIR. A revised NOI was published in the Federal Register to reinitiate the federal environmental process. As previously indicated, the initial NOI was published on June 4, 1986. Revised NOIs were subsequently published on January 11, 1991, and December 16, 1993, indicating that FHWA was reinitiating the preparation of the EIS/SEIR for the FTC-S. The December 16, 1993 NOI cited the earlier consultation efforts and stated that FHWA believed this extensive effort to be consistent with 40 CFR 1501.7 regarding scoping. Additionally, two agency and two public meetings were held on August 25 and September 16, 1994, as summarized below. A revised NOI for the public meetings held in March 2001 was published in the Federal Register on February 20, 2001. The exact dates and locations of the March 2001 meetings were provided in a supplemental NOI published in the Federal Register on March 14, 2001. Copies of all NOIs are available for review during regular business hours at TCA offices.

11.5.3.1 AGENCY SCOPING

Agency Pre-Scoping Meeting (January 12, 1994)

FHWA, in coordination with Caltrans and the TCA, held a pre-scoping meeting on January 12, 1994, at the offices of Michael Brandman Associates, 2530 Red Hill Avenue, Santa Ana, California. The purpose of this meeting was to allow public agencies with resources potentially affected by the project an opportunity to identify key items for analysis that should be incorporated into the scope of work for the EIS/SEIR. An overview of biological surveys to be conducted in 1994 was provided. CDFG, USFWS, ACOE, MCB Camp Pendleton, EPA and the CCC were invited to the meeting. MCB Camp Pendleton and ACOE attended, in addition to FHWA, Caltrans, TCA and environmental consultants.

Following is a summary of the issues raised by the agencies attending the meeting:

MCB Camp Pendleton

1. Commented on the 0.4 km (0.25 mile) study area for biological surveys. Approximately 283 ha (700 acres) of land north of the corridor would be isolated from the rest of the Base with project implementation.

2. Requested clarification regarding the schedule for the preparation of the EIS/SEIR scope of work, involvement of MCB Camp Pendleton and the timing of reviews of the scope of work.

3. Requested information on what would be required of MCB Camp Pendleton to facilitate the EIS/SEIR process, specifically the completion of biological surveys in 1994.

4. Commented on the timing and development of mitigation measures. MCB Camp Pendleton requested that they be involved in this process.

5. A request was made to have individual meetings to discuss other issue areas such as hydrology and water quality and impacts on military operations and training activities.

United States Army Corps of Engineers

1. Identified that the NEPA/Section 404 Integrated Process was being developed. An MOU between ACOE, FHWA, Caltrans and the Federal Transit Administration (FTA) would identify guidelines for coordination of transportation projects with ACOE.

United States Fish and Wildlife Service

1. The proposed corridors traverse prime gnatcatcher habitat.

2. The NCCP and multispecies programs currently being developed are significant issues which should be addressed in the EIS/SEIR.

3. The corridors traverse prime undeveloped areas.

4. USFWS is assuming the cactus wren will be listed and should be treated as such in the EIS/SEIR.

<u>Agency Scoping Meeting (February 2, 1994)</u>

The agency scoping meeting was held on February 2, 1994, at the City of Santa Ana City Council Chambers, 20 Civic Center Plaza, Santa Ana, California. The scoping meeting was noticed in the Federal Register on December 16, 1993, and notices were sent to agencies on January 7, 1994. A copy of the notification letter and distribution list is included in the Record of Public Scoping Report. As part of the notification letter, agencies received a project briefing

paper which included a brief description of the project, background information and discussion of the alternative development process; project communications; and information on the project schedule. Mail-in comment cards were provided, with written comments requested by February 15, 1994.

The following agencies were represented at the scoping meeting. A list of attendees is included in the Record of Public Scoping Report.

- United States Fish and Wildlife Service.
- MCB Camp Pendleton.
- United States Army Corps of Engineers.
- California Department of Fish and Game.
- California Department of Parks and Recreation.
- County of Orange.
- City of Mission Viejo.
- City of San Clemente.

Following is a summary of issues raised by agency representatives at the scoping meeting.

United States Fish and Wildlife Service

1. Wanted to ensure that previous USFWS correspondence on TCA FEIR 3 and the TCA Supplemental EIR 3 were included in the record for the EIS/SEIR.

2. Noted that a minimum of two federally listed species are located in the project area and would require directed surveys (California gnatcatcher and least Bell's vireo).

3. The pacific pocket mouse was emergency-listed on January 31, 1994, and needs to be addressed in the EIS/SEIR.

4. The potential growth-inducing effects of the project, specifically related to biological resources and federally listed species, need to be addressed in the EIS/SEIR.

MCB Camp Pendleton

1. Requested additional information on avoidance alternatives that would be evaluated in the EIS/SEIR.

California Department of Fish and Game

1. Expressed concern regarding cumulative project impacts specifically related to habitat fragmentation.

2. Expressed concern regarding the analysis of impacts on wildlife crossings. Relying on facilities in the Master Plan of Arterial Highways (i.e., riding and hiking trails) would not be adequate.

3. CDFG will provide a list of species it is concerned with.

4. Commented that the FTC-South planning should not preclude planning for NCCP.

City of San Clemente

1. Voiced concern regarding the selection of viewsheds for visual simulations of the project. The city would like to be involved in this selection process.

2. Expressed concern with the location and timing of public scoping meetings.

City of Mission Viejo

1. Questioned which traffic model would be used to evaluate traffic impacts associated with implementation of the project.

Additionally, written letters regarding these issues were received by the TCA from the Cities of San Clemente and Mission Viejo.

Public Scoping Meetings

FHWA, in coordination with the TCA and Caltrans, held two public scoping meetings for the EIS/SEIR; the first was on August 25, 1994, in the City of Oceanside and the second was September 16, 1994, in the City of San Clemente. Notification of these meetings was published in the Orange County Register, the Sun Post News and La Opinion on July 29, 1994; and the Blade Citizen and San Diego Union Tribune on July 30, 1994. Additionally, notice of the meeting in San Clemente was published on September 2, 1994, in the Los Angeles Times and the Orange County Register. Notices were sent by first class mail to the agencies and interested individuals on the distribution list developed during the TCA EIR 3 process.

To facilitate the scoping process and the dissemination of the information, the public scoping meetings were conducted in an "open house" style. The meetings were divided into three stations. Station 1 provided a video which outlined the history of the project, the purpose of the scoping meeting and the other relevant project information. Station 2 provided maps and exhibits depicting the proposed BX and CP alignments and the issues to be addressed in the EIS/SEIR. Additionally, representatives from FHWA, Caltrans, the TCA and the consultant team were available to answer questions regarding the project. At Station 3, certified court reporters were available to record comments made by individuals attending the meetings. Handouts which provided detailed information on the scoping process and the project were provided to attendees. All information related to the two public scoping meetings (handouts, sign-in sheets, comment letters, reduced copies of the exhibits, reporter's transcripts) is provided in the Record of Public Scoping Report. Following is a summary of the individual meetings:

- Oceanside (August 25, 1994). The public scoping meeting in the City of Oceanside was held at the Oceanside Senior Center at 455 Country Club Lane between the hours of 4:30 PM and

7:30 PM. Approximately 33 people attended this meeting. Two people provided comments to the court reporter.

- San Clemente (September 16, 1994). This meeting was held at the San Clemente Community Center Auditorium at 100 N. Calle Seville, also between the hours of 4:30 PM and 7:30 PM. Approximately 86 people attended the meeting, and 14 people provided testimony to the court reporter. Additionally, three people provided tape-recorded comments.

As part of the scoping process, the public was encouraged to provide input as to what issues should be addressed in the EIS/SEIR. This input was received in the form of verbal comments at the public meeting and through written correspondence. A summary of the issues/concerns raised during the public scoping process is provided below.

General Issues

- Purpose and need for the FTC-South.
- Potential cumulative and growth-inducing impacts.
- Taxpayers should not have to pay for a roadway that benefits developers.
- TCA needs to fulfill requirements of Intermodal Surface Transportation Efficiency Act (ISTEA).
- A Major Investment Study needs to be completed.
- Data/forecasts used in EIR are out of date and need to be updated for the EIS/SEIR.
- The cost of constructing FTC-South should be disclosed.
- The EIS/SEIR should identify FTC-South "users."
- Explain how Caltrans will be able to fund maintenance of FTC-South after it is constructed.

Alternatives

- A mass transit alternative should be analyzed.
- Evaluate a connection with I-15.
- Evaluate TSM improvements.
- An alternative based on transit-oriented development for future development projects.

Socioeconomics

- Widening of I-5 would result in substantial displacements.
- Removal of the offramps would affect the economic viability of businesses.
- The project would affect property values in surrounding areas.

Traffic/Circulation

- The project would result in an "El Toro Y" at the intersection of the FTC-South and I-5.
- The project would result in congested traffic conditions on local arterials.
- Improve the local circulation network as an alternative to building a new roadway.

- FTC-South is not necessary with the extension of Antonio Parkway/La Pata Avenue.

Hydrology/Water Quality

- There would be water quality impacts as a result of runoff.
- Assess the impacts of the project related to water supply.

Biological Resources

- The biological assessment should consider all native species, not just those protected by the resources agencies.
- The EIS/SEIR should consider potential impacts on the dispersal, migration and other movements of large mammals.
- Compatibility with the NCCP should be addressed.
- Wetlands should be protected.
- The EIS/SEIR should consider ecosystem functions.

Land Use

- The Trestles Beach area of San Onofre State Beach should be protected.
- Park areas along the FTC-South should be avoided.
- BX alignment would affect existing residential development in the City of San Clemente.
- The EIS/SEIR should address community cohesiveness in the City of San Clemente.
- The project would affect the rural character of residential development in the City of San Juan Capistrano.
- The interchange with Avenida Pico would negatively affect surrounding residents.

Other Environmental Issues

- The project would result in decrease in air quality.
- Historical sites are located in the project area and should be protected.
- The project would result in noise and aesthetics impacts on surrounding uses should be considered.

11.5.4 MAJOR INVESTMENT STUDY

In accordance with the requirements of ISTEA, a Major Investment Study (MIS) was prepared for the FTC-South. The MIS is a tool for improving decisions regarding transportation investments in metropolitan areas (see 23 CFR 450.318). SCAG, as the MPO for the region, was the lead agency on the MIS for the FTC-South. The Foothill Transportation Corridor-South Major Investment Study (Michael Brandman Associates, 1996) provides detail on the history of the proposed project, the development of the alternatives, past public and agency involvement in the process, the consistency of the FTC-South with the transportation planning process, an analysis of the potential environmental impacts, and financial considerations of the alternatives.

The agencies identified as participating agencies in the MIS process included:

- SCAG
- Caltrans Districts 11 (San Diego and Imperial Counties) and 12 (Orange County)
- FHWA
- Federal Transit Administration
- OCTA
- SANDAG
- North County Transit District (San Diego County)
- SCAQMD

On February 21, 1996 the FTC-South was presented to the SCAG MIS Peer Review Committee. An FTC-South briefing paper and the proposed outline of the MIS were discussed. Based on that meeting, the TCA was given direction to complete the MIS consistent with the outline provided. The draft MIS was submitted for review by the Peer Review Committee. Comments on the draft MIS were received and revisions to the MIS were incorporated accordingly. The Final MIS was submitted to SCAG on April 18, 1996 and presented to the Peer Review Committee on April 25, 1996. A letter acknowledging the completion of the MIS process for the FTC-South was sent to the TCA by SCAG on May 7, 1996. After action by SCAG, the MIS was also reviewed by the SANDAG MIS review committee. The SANDAG review included Caltrans District 11 and the North San Diego County Transit Development Board. A letter from SANDAG concurring with the SCAG determination was sent to FHWA on July 24, 1996.

11.5.5 FOOTHILL SOUTH ADVISORY COMMITTEE

The FSAC was established to ensure continued coordination with cooperating and local agencies throughout the EIS/SEIR process. Quarterly meetings provided an opportunity to update the interested agencies on the status of work completed, issues that have arisen, significant problems, anticipated upcoming work, and overall schedule compliance. The representative on the FSAC acts as a liaison on the project with their respective agencies. The FSAC, as amended, is comprised of the following agencies:

- FHWA
- TCA
- Caltrans Districts 11 and 12
- MCB Camp Pendleton
- Army Corps of Engineers
- California Coastal Commission
- County of Orange
- SCAG
- San Diego Association of Governments
- Rancho Mission Viejo Land Conservancy
- Environmental Protection Agency
- United States Fish and Wildlife Service
- California Department of Fish and Game
- State Department of Parks and Recreation
- City of San Clemente
- City of San Juan Capistrano
- City of Mission Viejo
- Rancho Mission Viejo Company
- Orange County Transportation Authority
- SANDAG

The FSAC was provided the opportunity to review a draft scope of work for the EIS/SEIR. Comments on the scope of work were either incorporated or responded to in writing by the TCA.

The first FSAC meeting discussed the final scope of work, the project schedule and discussed concerns of the agencies. Additionally, in August 1995 there were workshops to review methodologies, study area and anticipated coordination efforts. Subsequent meetings were held approximately once a quarter. The FSAC met on 8 occasions between 1995 and 1998.

11.5.6 COORDINATION WITH THE PETITIONERS AND ENVIRONMENTAL INTEREST GROUPS

As part of the settlement agreement on TCA EIR 3, the TCA agreed to involve the Petitioners (representatives from San Clementeans Against Toll Roads, Inc., Defenders of Wildlife and the Sierra Club) in the preparation of the EIS/SEIR at numerous points through the process. This included allowing the Petitioners to review and comment on the scope of work and review the technical reports and administrative draft EIS/SEIR with the FSAC. Coordination with the Petitioners on the scope of work occurred in December 1993. Similar to the purpose of the FSAC, the early review was intended to solicit early input from these concerned citizens. In November 1995, prior to the completion of any technical studies, the public review group was expanded to include a representative from Defenders of Wildlife, who had expressed an interest in the project. In addition to providing the technical studies for early review, the TCA arranged petitioner's workshops for each of the technical studies. After having the technical report for approximately 10 days, the preparer of the technical report would provide an overview of the report and be available for answering any questions. The workshops were scheduled in the evening at the TCA offices:

• July 29, 1996	Initial Site Assessment (hazardous materials)
• August 19, 1996	Geotechnical Report
• September 9, 1996	Traffic and Location Hydraulics
• September 23, 1996	Natural Environment Study (biological resources)
• October 7, 1996	Run-off Management Plan
• October 21, 1996	Noise Report
• November 12, 1996	Air Quality and Visual Impacts
• January 13, 1997	Socioeconomics
• January 27, 1997	Section 4(f) and Cultural Resources

Not all the workshops were held because of lack of attendance by the petitioners and environmental interest groups. Written comments were received on the Traffic Report and Section 4(f) Evaluation. These comments were responded to in writing by the TCA.

11.5.7 TRAFFIC TECHNICAL COMMITTEE

At the onset of the preparation of the traffic technical report in 1995, a traffic technical committee was established to provide a forum for the local jurisdictions that would be affected by the FTC-South to provide input on the modeling effort and the socioeconomic data to be used. It was important that there be a consensus on these issues since it would determine the data that would be provided by the traffic model. The jurisdictions that participated were asked to review the land use distribution from the OCP-92 data to the traffic analysis zones within their area of jurisdiction and other parameters of the traffic model. They provided information on the

circulation network and performance criteria. Each participant was given the opportunity to review the early data output prior to the preparation of all the circulation model runs. The following agencies were invited to participate in the traffic technical committee:

- Caltrans
- OCTA
- City of San Juan Capistrano
- TCA
- County of Orange
- City of Mission Viejo
- City of San Clemente
- City of Laguna Niguel

Part way through this process, MCB Camp Pendleton joined the committee. In addition to the local jurisdictions, the Santa Margarita Company (predecessor to the Company) was invited to participate since they are the primary land owner in the study area. This group met on six occasions between December 12, 1995 and April 2, 1996.

11.5.8 OTHER AGENCY COORDINATION EFFORTS

In addition to the meetings identified above, there were other coordination efforts with both agencies and the public. Over 100 meetings were held with various agencies to identify concerns, discuss protocols, and evaluate impacts and mitigation measures. In addition there were numerous correspondences and transmission of data with involved agencies. The following is a synopsis of that effort:

- MCB Camp Pendleton-Meetings and correspondence with Marine Corps staff between 1994 and 1997 pertaining to biological resources, military impacts, geotechnical considerations, Section 4(f), noise and visual impacts. MCB Camp Pendleton is the lead agency regarding all issues on the Base.

- USFWS-Meetings and correspondence with the agency focused on survey protocols, impacts and project alignment.

- ACOE- As the lead agency for the Section 404 (b)(1) process, there have been meetings and correspondence with the ACOE to discuss wetland issues.

- CDFG-There were several meetings, as well as correspondence with CDFG to discuss biological issues.

- California Department of Parks and Recreation-As the leaseholder for SOSB, there were meetings with State Parks to discuss the impacts to SOSB and the resources within the State leasehold.

- County of Orange-The majority of the alignments traverse unincorporated Orange County. There were meetings and correspondences to discuss land use impacts, Section 4(f) and impacts to Prima Deshecha Sanitary Landfill.

- Orange County Transportation Authority-There were two coordination meetings and seven correspondences regarding circulation issues.

- City of San Juan Capistrano-There were meetings and correspondences with the City to discuss project alignment and land use issues.

- City of San Clemente-There were meetings to discuss Section 4(f) resources, potential economic impacts and land use impacts. In addition, there has been correspondence or data transmittals pertaining to potential impacts to the City.

- City of Oceanside-There were meetings with the City to discuss land use and growth inducing issues.

- City of Carlsbad-A meeting was held with the City to discuss land use and growth inducing issues.

- San Diego Association of Governments-Meetings have been held to provide a briefing on the project and discuss land use and growth inducing efforts. In addition, there have been written correspondences and data transmittals.

- Capistrano Unified School District-The TCA met with District staff to discuss impacts to the District as a whole, and San Clemente High School and Ole Hanson Elementary School specifically.

- Rancho Mission Viejo Company-As the major landowner in the area, there were a number of meetings and correspondences with the Rancho Mission Viejo Company to discuss access permits, agricultural operations, development phasing, available mapping and biological resources.

- City of Mission Viejo-Coordination efforts with the City, through meetings and correspondences, focused on land use and traffic issues.

- Orange County Fire Authority-There was a meeting and correspondences to discuss the potential impacts associated with the alternative alignments on the provision of fire service.

- EPA-There was correspondences or data transmittals between the lead agencies or consultant team and EPA.

- California Coastal Commission-There were correspondences or data transmittals between the lead agencies or consultant team and the CCC.

- Southwest Division Naval Facilities Engineering Command-There were meetings and correspondences between the lead agencies or consultant team and Southwest Division of Naval Facilities Engineering Command pertaining to cultural and biological resources.

- Southern California Association of Governments-There were correspondences with SCAG regarding air quality and transportation, in addition to the MIS process.

- National Marine Fisheries Service-FHWA coordinated with NMFS pursuant to the NEPA/Section 404 Integration Process.

- California Air Resources Board-There was coordination with the Air Resources Board during the preparation of the air quality parameters.

- South Coast Air Quality Management District Board-There was coordination with AQMD during the preparation of the air quality parameters.

In addition to the meetings listed above, there have been meetings with each of the major land owners (Forster Ranch, Talega Valley, Marblehead Inland and Coastal, and Plaza Pacifica) regarding potential impacts to implementation of their projects.

11.6 PUBLIC AND AGENCY INVOLVEMENT FOR THE CURRENT EIS/SEIR

A Scoping Summary Report has been prepared and is available for review at the TCA. That report contains scoping related documents and correspondence that are referenced in this Section.

11.6.1 PUBLIC NOTIFICATION PROCESS

Three public scoping meetings for the SOCTIIP were held in Orange and San Diego Counties in March 2001. These meetings sought input from public agencies, members of the general public, stakeholders and other interested parties related to the SOCTIIP alternatives and the overall scope and content of the EIS/SEIR.

This Section specifically describes the following components of the scoping process for the SOCTIIP EIS/SEIR:

- The scoping meetings held in March 2001.

- The Notice of Preparation (NOP) of a Subsequent EIR under CEQA and responses received by the TCA on the NOP.

- The Notice of Intent (NOI) to prepare an EIS under NEPA and responses received by FHWA on the NOI.

- Information meetings held with several interested agencies and environmental groups.

Notification of the public scoping meetings was provided as follows:

- TCA "Get Involved with Foothill-South" flyer, a one page overview of the SOCTIIP alternatives and announcing the public scoping meetings, was mailed to approximately 1,200 recipients, including federal, state and local agencies and interested members of the public.

- The TCA Website (www.thetollroads.com) provided information on the dates and locations of the scoping meetings as well as providing an opportunity to submit comments on the project directly on the website.

- Newspaper advertisements/notices as follows:

  Orange County Register, Monday, March 12, 2001
  Dana Point News, Thursday, March 15 and 22, 2001
  Capistrano Valley News, Thursday, March 15 and 22, 2001
  Canyon Life/Rancho Santa Margarita News, Thursday, March 15 and Friday, March 23, 2001
  Saddleback Valley News, Friday, March 16 and 23, 2001
  San Clemente Sun Post, Friday, March 16 and Thursday, March 22, 2001
  Oceanside – North County Times, Monday, March 12 and Thursday, March 22, 2001

The dates of the scoping meetings were published in the Federal Register on Wednesday, March 14, 2001 (66 F.R. 10934). In addition, the TCA flyer and request to receive the Foothill South public notices was distributed to federal, state and local agencies and interested parties by United States Postal Services first class mail on March 16, 2001.

Copies of the TCA flyers, the newspaper publications and the first class mailing list are provided in Appendix A of the South Orange County Transportation Infrastructure Improvement Project Scoping Summary Report (P&D Consultants, 2003).

In addition to these public scoping meetings, additional meetings to solicit input from other agencies were conducted with the California Department of Parks, the National Marine Fisheries Service and several environmental groups, as described later in this Section.

11.6.2 SOCTIIP SCOPING MEETINGS

The scoping process allows the lead agency to solicit input from the public and interested agencies on the nature and extent of issues and impacts to be addressed in the EIS/SEIR and the methods by which those impacts will be evaluated. NEPA specifically requires the lead agency to consult with federal agencies that have jurisdiction by law or special expertise on a proposed action. The lead agency is also required to solicit appropriate information from the public during EIS preparation. CEQA encourages the use of scoping by the lead agency to ensure identification of issues that are of concern to responsible agencies and the general public and requires scoping under some circumstances.

Public scoping meetings for the SOCTIIP EIS/SEIR were held on the following dates and locations:

Monday, March 26, 2001
Christian Heritage Church
190 Avenida La Pata
City of San Clemente

Tuesday, March 27, 2001
Trabuco Mesa Elementary School
21301 Avenida De Las Flores
City of Rancho Santa Margarita

Thursday, March 29, 2001
Mission San Luis Rey
4070 Mission Avenue
City of Oceanside

The format of these scoping meetings was:

- Presentation by the TCA describing the proposed SOCTIIP alternatives and the environmental process.
- Public comments.
- Informal information at presentation boards provided at locations throughout the meeting space. Boards included the project alternatives, biological resources, water resources, traffic, air quality and noise.
- Provision of handouts describing the project alternatives and the environmental process. Copies of the handouts provided at the public scoping meetings are provided in Appendix B of the Scoping Summary Report.

11.6.2.1 Summary of Comments from the Scoping Meetings

Summary of the Scoping Meetings

Public comments were accepted in the following ways at the scoping meetings.

- Verbal comments following the formal presentation, with comments taken by a court reporter. Those verbal comments are provided in Appendices C, D and E, in the Scoping Summary Report for the 3/26/01, 3/27/01 and 3/29/01 scoping meetings, respectively. Those transcripts also include the presentations made by TCA staff prior to the public comment period at each meeting.
- Verbal comments at any time during the scoping meeting, with comments taken by a court reporter, in an area separate from the main meeting room. Those verbal comments are provided in Appendices F, G and H, in the Scoping Summary Report for the 3/26/01, 3/27/01 and 3/29/01 scoping meetings, respectively.
- Written comments at the scoping meeting, using either personal stationary or scoping meeting cards provided at the meeting. The written comments received at the scoping meetings are provided in Appendices I, J and K, in the Scoping Summary Report for the 3/26/01, 3/27/01 and 3/29/01 scoping meetings, respectively.
- Written comments submitted to the TCA after the scoping meetings. Copies of written comments received by the TCA after the public scoping meetings are provided in Appendix L in the Scoping Summary Report.

- Written comments on the TCA's website. Copies of these written comments are provided in Appendix M in the Scoping Summary Report.

- Written comments received by FHWA and transmitted to the TCA. These written comments are provided in Appendix N in the Scoping Summary Report.

Attendees at the three public scoping meetings were invited to, but were not required to, sign in as they entered the meeting facilities. The sign-in sheets for the 3/26/01, 3/27/01 and 3/29/01 public scoping meetings are provided in Appendices O, P and Q respectively in the Scoping Summary Report.

Summary of Comments Received At and After the Public Scoping Meetings

Approximately 400 comments were received during and after the public scoping meetings held in March 2001. An overview of the comments is provided in Table 11.6-1. The names and jurisdictions or association/agency represented of all persons who commented at the scoping meetings are provided in Table 11.6-2. Table 11.6-3 summarizes all the comments provided at those meetings and the Sections in this EIS/SEIR in which they are addressed. The comments are grouped by general topics such as project alternatives, traffic, biological resources and noise.

11.6.3 MEETINGS

As noted earlier, in addition to the three public scoping meetings, additional meetings to solicit input from other agencies were conducted with the California Department of Parks and Recreation, the National Marine Fisheries Service (NMFS), the California Coastal Commission (CCC) and several environmental groups, as described below.

11.6.3.1 Meeting with the California Department of Parks and Recreation

A meeting was held at the TCA on June 4, 2001 to discuss the proposed SOCTIIP alternatives and the EIS/SEIR process with representatives from the California Department of Parks and Recreation. Attendees at this meeting included Mike Tope, Dave Pryor and Richard Rozzelle of the Department of Parks and Recreation; Macie Cleary-Milan and Peter Ciesla of the TCA; and Romi Archer and Christine Huard-Spencer of P&D Consultants, TCA's EIS/SEIR consultant. Issues they identified for consideration in the EIS/SEIR were connectivity of wildlife corridors to Cleveland National Forest; the impact of the take of a substantial part of the existing San Onofre State Beach (Park); impacts to protected species such as the arroyo toad; visual impacts on the Park; relationship of the Park to the San Onofre Nuclear Generation Station (SONGS) and mitigation for previous impacts associated with the SONGS. Other discussion focused on access permits for TCA and consultant staff to conduct geotechnical testing and other technical studies in support of the SOCTIIP engineering and environmental studies.

11.6.3.2 Meeting with the California Department of Fish and Game

A meeting was held at TCA on June 26, 2001, with representatives from the California Department of Fish and Game (CDFG) to discuss the proposed SOCTIIP alternatives and the biological

resource evaluations to be performed for the project. Attendees included Warren Wong, Laura Crumm and Pam Beare from CDFG; Macie Cleary-Milan and Pete Ciesla from the TCA; Betty Dehoney of P&D Consultants and Tony Bomkamp of Glenn Lukos Associates, TCA's wetlands consultant. Macie provided an overview of the history of the project and the project description. Betty explained the approach for the biological resources evaluation and Tony discussed the wetlands evaluation. CDFG staff requested to be kept informed of future environmental document releases.

11.6.3.3 Meeting with the National Marine Fisheries Service

On September 17, 2001, the TCA and its consultants met with a representative from NMFS to solicit that agency's input on the project and the anticipated technical studies. Attendees at this meeting were Rick Rogers of NMFS; Macie Cleary-Milan, Scott Bacsikin and Peter Ciesla of the TCA; Betty Dehoney of P&D Consultants; and Tony Bomkamp of Glenn Lukos Associates. The meeting included the following:

- A short description of the responsibilities and mission of the TCA, an overview of the SOCTIIP alternatives, prior environmental studies and historical perspective on the project.

- An overview of the technical studies being prepared for the Natural Environment Study Technical Report was provided documenting the existing conditions in the study area related to plant communities, jurisdictional delineations, focused plant surveys, invertebrates, fish, herptiles, birds and mammals. In general, the discussion focused on fish species.

- Description of engineering and mitigation actions to avoid or reduce impacts on fish species, including bridging San Mateo and San Juan Creeks, placement of minimal structures in drainages, and implementation of best management practices during and after construction.

- NMFS indicated that their interests would focus on the anadromous south coast steelhead, a federally endangered fish species. NMFS indicated that they would require details regarding the distribution of this species, data on tributaries related to physical impediments to migration, and construction and post-construction measures to ascertain adequately the effects of the project on this species.

11.6.3.4 Meeting with the California Coastal Commission

A meeting was held by the TCA on October 16, 2001 to discuss the SOCTIIP alternatives and the EIS/SEIR process with representatives of the CCC. Attendees at the meeting were Mr. Chris Flynn, CCC; Angela Vasconcellos and Smita Deshpande, Caltrans District 12; Macie Cleary-Milan, Pete Ciesla and Scott Bacsikin, TCA; Tony Bomkamp, Glenn Lukos Associates; and Romi Archer, P&D Consultants. Also participating in this meeting, by conference call, were Teresa Henry, CCC Long Beach office; Sherilyn Sarb, CCC San Francisco office; and Larry Simon, CCC, Federal Consistency Unit, San Francisco office.

The TCA confirmed that all alternatives will be evaluated at an equal level of detail in the EIS/SEIR. Mr. Simon described the requirements for the Consistency process. Because the project

has a federal nexus, the Federal Coastal Zone Consistency process and the need for a Coastal Development Permit (CDP) will be triggered if an alternative in the coastal zone is selected for implementation. The TCA would be the lead agency on the consistency submittal to the CCC. Issues that generally need to be evaluated in a consistency submittal include impacts to wetlands, creeks, water quality and recreation, and impacts on species such as the steelhead trout and tidewater goby. Mr. Simon noted that the San Mateo Campground was mitigation for the parking lot expansion at the San Onofre Nuclear Generating Station and that this would need to be addressed in the consistency submittal for alternatives which impact the Campground.

Submittal of a CDP would be through the CCC San Diego office because the majority of the study area in the coastal zone is in San Diego County. The timing for the CDP would be concurrent with the Consistency process.

11.6.3.5 Meeting with Environmental Groups

On September 24, 2001, the TCA held a meeting with environmental groups to solicit their input on the EIS/SEIR and the supporting technical studies. The meeting was held at 7:00 PM at the Dana Point City Hall office. Attendees were Andrew Wetzler, Natural Resources Defense Council; Dan Silver, Endangered Habitats League; Pete DiSimone, Audubon Society; Don Knuze, San Members; Wally Kreutzen, James Brown and Macie Cleary-Milan, TCA, and Rob Thornton, TCA Legal Counsel.

The TCA called this meeting to ensure that any additional input from environmental organizations is obtained and considered in the environmental analysis of the SOCTIIP alternatives. The environmental group representatives expressed concerns on the traffic modeling and assumptions; analysis of impacts to open space resources; the project's potential to create growth inducing impacts; and consideration of other cumulative projects in the analysis. The TCA was asked to ensure that (1) they identify a solution to water filtration systems from the road runoff, (2) that any impacts arising from the TCA/Caltrans non-compete agreement be identified and (3) that the analysis not focus solely on building the toll road. The non-compete agreement is contained in Section 2.1.6 of the May 13, 1993 Cooperative Agreement between the TCA and Caltrans for the Foothill Transportation Corridor.

11.6.4 PURPOSE OF THE NOTICE OF PREPARATION

The Notice of Preparation is a required notice under the California Environmental Quality Act (CEQA) to inform public agencies and persons requesting notice that an agency will be preparing an Environmental Impact Report (EIR). The purpose of the NOP is to solicit input on issues that should be addressed in the EIR, consistent with Section 15082 of the CEQA Guidelines. The NOP for the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) Subsequent EIR included a description of the SOCTIIP alternatives and a preliminary evaluation of the potential environmental impacts of the SOCTIIP alternatives. A copy of the NOP is provided in Appendix R of the Scoping Summary Report.

11.6.4.1 Distribution of the Notice of Preparation

The TCA issued the NOP for the SOCTIIP SEIR in June 2001. The NOP was distributed on June 7, 2001 by certified mail to a total of 4,055 agencies, property owners, members of the general public, groups and organizations and other potentially interested parties. It was posted with the Orange County Clerk's office on June 7, 2001 and on June 8, 2001 with the San Diego County Clerk. Agencies receiving the NOP included federal, state and local agencies, Orange County and cities in Orange County. Other recipients included the interested party list developed by the TCA in 1994, the Settlement Agreement parties, homeowner organizations in south Orange County, all persons who attended the March 2001 public scoping meetings and who completed either the sign-in form or submitted written comments at or after the scoping meetings, and property owners along the alignments of the build alternatives. The distribution list for the NOP is on file in the Environmental and Planning Department at the TCA.

The NOP was distributed on June 7, 2001 by certified mail to property owners and agencies in proximity to all the alignments of the build alternatives. Because there was potential that recipients along I-5 might not have been fully aware of the SOCTIIP because the I-5 was a new alternative, a separate cover letter was provided in the NOP package for those recipients. A copy of that letter is included at the end of Appendix R of the Scoping Summary Report.

11.6.4.2 Summary of Comments in Response to the Notice of Preparation

Table 11.6-4 provides a summary of the comments received by the TCA from agencies in response to the NOP. A total of 25 agencies, nine groups and organizations and 58 members of the general public provided written NOP comments. All copies of the written comments received in response to the NOP are provided in Appendix S in the Scoping Summary Report. The names and jurisdictions of groups, organizations and members of the general public who commented on the NOP are provided in Table 11.6-5. Table 11.6-6 summarizes all the comments provided by those parties in response to the NOP and the Sections in this EIS/SEIR in which they are addressed. The comments are grouped by general topics such as project alternatives, traffic, biological resources and noise.

11.6.5 PURPOSE OF THE NOTICE OF INTENT

The purpose of a Notice of Intent (NOI) under the National Environmental Policy Act (NEPA) is to provide notification that a federal agency will be preparing an Environmental Impact Statement (EIS). The NOI specifically solicits the input of federal agencies and others on issues that should be addressed in the EIS.

11.6.5.1 Publication of the Notice of Intent

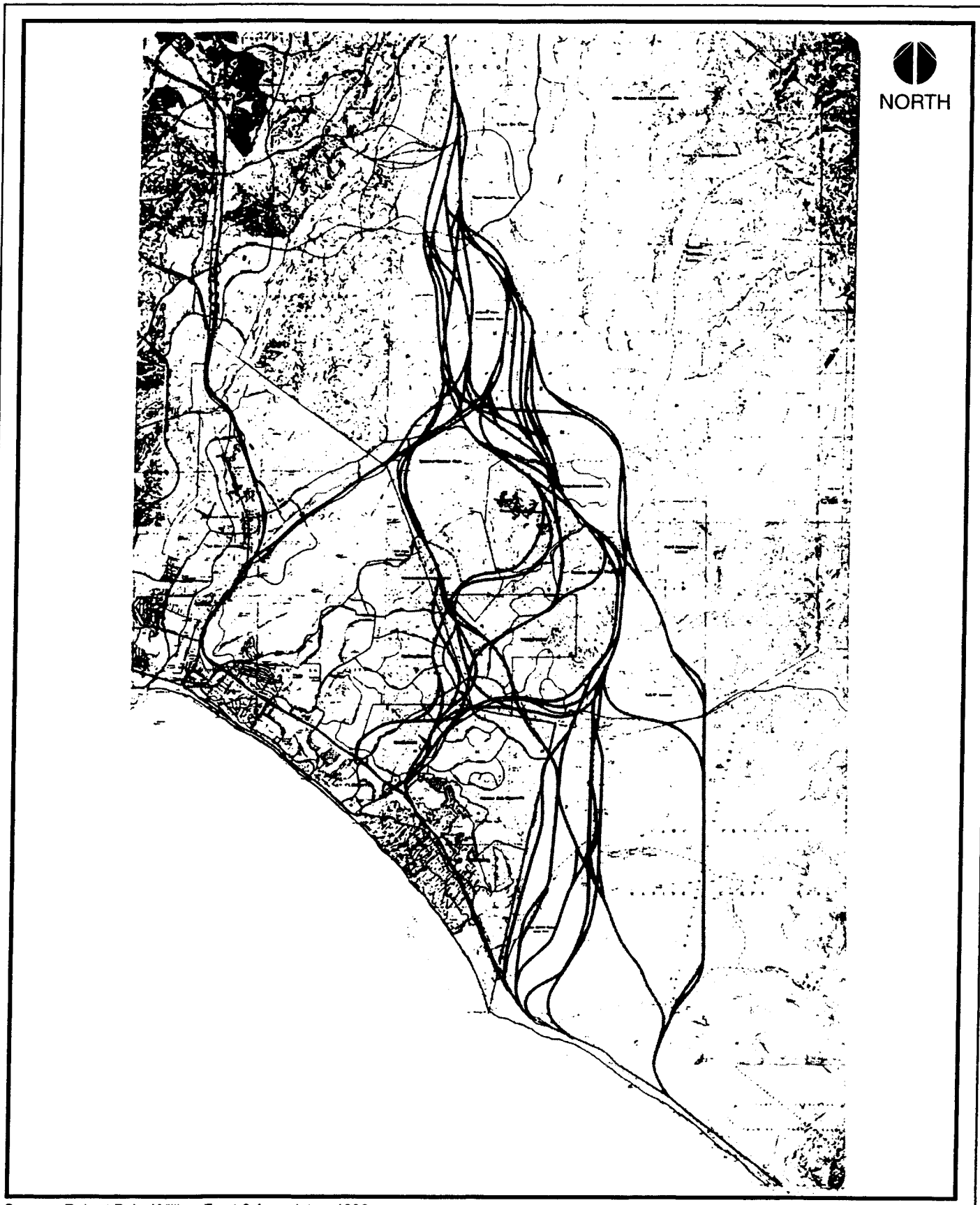
FHWA originally published a NOI for the Foothill Transportation Corridor- South EIS/SEIR in the Federal Register on June 4, 1986 (51 F.R. 20398) and again on December 16, 1993. FHWA published a Revised NOI on February 20, 2001 in the Federal Register (66 F.R. 10934) which notified federal agencies that an EIS will be prepared for a proposed transportation improvement in south Orange County and northern San Diego County. The February 2001 NOI described the

proposed SOCTIIP alternatives and described the history of the project related to the earlier NEPA and CEQA notices and studies.

FHWA published a Supplemental NOI in the Federal Register on March 14, 2001 (66 F.R. 10934) to inform federal agencies of the dates, times and locations of the three scoping meetings in March 2001. Copies of the Revised and Supplemental NOIs are on file and available for review at TCA offices.

11.6.5.2 Summary of Comments in Response to the Notice of Intent

Written comments on the NOIs were received from two federal agencies and three environmental groups. Copies of these comment letters are provided in Appendix U in the Scoping Summary Report. These comments are summarized in Table 11.6-7.



Source: Robert Bein, William Frost & Associates, 1986

1986 Alternatives Analysis Scoping Alternatives

TABLE 11.6-1
OVERVIEW OF COMMENTS FROM THE PUBLIC SCOPING MEETINGS

Comments at the 3/26/01 Public Scoping Meeting	
Number of commentors (verbal) at meeting.	38
Number of verbal comments to court reporter.	51
Number of comment cards.	137
Major issues included impacts related to open space, urban sprawl, runoff, water quality, endangered and threatened species, wildlife corridors, San Onofre State Park, traffic, San Mateo Campground, growth inducement, noise, beaches, quality of life, air quality, Trestles beach, surfing, San Mateo Creek, wetlands; habitat; objectivity of the study and the non-compete clause. There was also concern expressed that the attendees were not allowed, at the request of the property owner, to display poster exhibits in the building at the meeting.	
Comments at the 3/27 Public Scoping Meeting	
Number of commentors (verbal) at meeting.	5
Number of verbal comments to court reporter.	2
Number of comment cards.	32
Major issues included impacts related to construction, runoff, habitat, ocean, water quality, traffic, noise, air quality, wildlife and objectivity of study.	
Comments at the 3/29 Public Scoping Meeting	
Number of commentors (verbal) at meeting.	27
Number of verbal comments to court reporter	1
Number of comment cards.	5
Major issues included impacts related to open space, urban sprawl, runoff, water quality, endangered species, wildlife, San Onofre State Park, traffic, growth inducement, noise, beaches, quality of life, air quality, Trestles, surfing, San Mateo Creek, wetlands, habitat and objectivity of the study.	
Mailed Comments	
Number of comments.	51
Major issues included impacts related to wildlife, traffic, air quality, runoff, beaches, San Onofre State Park, urban sprawl, habitat, endangered species and San Mateo Creek.	
Website Comments	
Number of comments.	29
Major issues included impacts related to open space, urban sprawl, runoff, water quality, endangered species, wildlife, San Onofre State Park, traffic, growth, noise, beaches, quality of life, air quality, Trestles, surfing, San Mateo Creek and Campground, wetlands, habitat and objectivity of the study.	
Letters to FHWA	
Number of letters.	125
Major issues included impacts related to open space, urban sprawl, runoff, water quality, endangered species, wildlife, San Onofre State Park, traffic, growth, noise, beaches, quality of life, air quality, Trestles, surfing, San Mateo Creek and Campground, public health and safety, objectivity of the study, wetlands and habitat.	

TABLE 11.6-2
LIST OF ALL PERSONS WHO COMMENTED AT THE PUBLIC SCOPING MEETINGS

Eddie Rose (no address given).	Lacy Robert (no address given).	Stephanie Dory, San Clemente City Council
Julia Belize, San Clemente	Ken Nielsen, San Clemente	Annette Stoner, San Clemente
Andrew Wetzler, Natural Resource Defense Council	Eleanore Henry, Laguna Beach	Walter Holland (no address given).
Karen Phelps, Dana Point	Sandra Noble, San Clemente	Jim Hill, San Clemente
Brad Malbin, San Clemente	Wayne Eggleston, Member San Clemente City Council	Hal Forsen, San Clemente
Don Hagster, Fullerton	Gary Hesner (no address given).	Jerry Collamer, San Clemente
Blake Story, Laguna Niguel	Jeff Harris, San Clemente	Jenna Sufset, San Clemente
Bill Wineford, San Clemente	Anne Morgan, Westminster	Christopher Coons, Orange
Dee Brady, (name of organization inaudible) local resident	Maura Macula, Capistrano Beach	Greg Kosh, Anaheim
Steve Netherby, San Clemente	Ms. Mauzey, Laguna Niguel	Clair Schlotterbeck, north Orange County, President of Hill for Everyone
Laura Cohen, Mission Viejo Land Conservancy	Patty Meadd, California resident	Justin McCarthy, San Clemente
Dave Throman, Chair of the South Orange County Group	Campbell Seach, San Clemente	Jenny Leach, student UC Santa Cruz
Paul Arms, Huntington Beach	Mark (inaudible)	David Semrau, Dove Canyon
Gary Thompson, member Rancho Santa Margarita City Council	Matthew Ichinose, San Juan Capistrano	Ian Tacquard (no address given).
Matt Taylor, Rancho Santa Margarita	Rick Andabazo, San Diego County	Jeff Purdy, San Clemente
Mary Clarke, San Diego Sierra Club	Michael Salen, San Clemente	Karen Phelps, Dana Point
Kevin Walnut, San Diego	Don Warkomski, Lucadia	Karl Warkomski, member Aliso Viejo City Council
Guy Pezerello, San Clemente	Jim Corker, Oceanside	Patrick Shebrocky, San Diego
Don Acunes (no address given).	Daryl Wilson, San Diego County	Dorothy Beauchamp, San Clemente
Jerry Callimer, San Clemente	Karen Johnson, Carlsbad	Don Hampster, Fullerton
Ernest Clark, Oceanside	Les Beauchamp, San Clemente	Kristin Suttan, Corona
Karina Nova, Imperial Beach	Dino Cerifini, San Diego	Emily (no last name given), Placentia
Matt (no last name given), Anaheim	Jeff Purdy, San Clemente	Patrick Shebrocky, San Diego
Brad Malamud, San Clemente	Anna Noble, San Clemente	Jenna Sussex, San Clemente
Hal Forsen, San Clemente	Patti Mead, San Clemente	Richard Rozzelle, San Clemente, California Department of Parks and Recreation
Douglas Benesch, San Clemente	Geoff Harris, San Clemente Better Government Alliance, San Clemente	Donna Benesch, San Clemente
Lynette Finnila, San Clemente	Leo Galcher, San Clemente	Tim Elsner, San Clemente
Randal Seech, San Clemente	Steven Weaver, San Clemente	Steve Haubert, San Clemente
Ilse Byrnes, San Juan Capistrano, California Trails and Greenways Association	Linda Funderburk, San Clemente	Tom Souther, San Clemente
Frank Haroldson, San Clemente	Doug Funderburk, San Clemente	Dave Huber, Capistrano Beach
Tom Pezaman, San Clemente	Bob Szpila, San Clemente	Scotty Ferguson, Laguna Beach
Scott Hunt, San Clemente	John Safton, Trabuco Canyon	Jaec Mullan, Mission Viejo
Jamie Howard, Huntington Beach	Jeff Howard, Huntington Beach	Phyllis Trigg, San Clemente

TABLE 11.6-2
LIST OF ALL PERSONS WHO COMMENTED AT THE PUBLIC SCOPING MEETINGS

Ed Schlegel, Capistrano Beach	Nora Jans, San Clemente	David Bendall, Aliso Viejo
Bill Holmes, Dana Point, Chairman of Steering Committee for Friends of the Foothills	Lisa Kerr, San Clemente	Jeff Purdy, San Clemente
Dr. Jane Morrison, Santa Margarita	Eric Holmes, Costa Mesa	Zachary Ponsen, San Clemente
Jayne Cavanaugh, San Juan Capistrano	Melinda Stone, San Clemente	Tim Landosky, Rancho Santa Margarita
Michael Bosse, San Clemente	Nick Wiesenfeld, Aliso Viejo	Jerry Demers, San Clemente
Carol Boot-Storie, (no address given)	Jeff Purdy, San Clemente	Kristeen Penrod, Monrovia
Laurie Headrick, San Clemente	Janet Bierney, San Clemente	Gretchen Radzwill, San Clemente
Karl Warkomski, Aliso Viejo, City of Aliso Viejo Councilman	Wayne Clark, Rancho Santa Margarita	Jesse Beck, San Juan Capistrano
Renata Breisacher Mulry, San Diego County	Terry Lee Ives, San Clemente	Leigh and Joyce Matthews, San Clemente
Bruce Schefer, San Clemente	Thomas Miller, San Clemente	Brad Malamud, San Clemente
Kathleen Burke, Laguna Niguel	Glenn Powell, San Clemente	Gloria Powell, San Clemente
Kathleen Burke, Laguna Niguel	Kathleen Burke, Laguna Niguel	Kathleen Burke, Laguna Niguel
Sarah Whelphey, San Clemente	Diana Hammer, San Clemente	Murphy, Laguna Niguel
Annette Stoner, San Clemente	Barbara Roseabaum, Coto de Caza	Brian Brower, San Clemente
Jim Stoner, San Clemente	Wallace J. White, San Clemente	Doug and Donna Benesch, San Clemente
Cindy Leach, Dana Point	Carol Collamer, San Clemente	Jerry Collamer, San Clemente
Diana Teran Blaisure, Newport Beach	Dick Amato, San Clemente	Jayne Timberlake, Goleta
Jayne Timberlake, Goleta	Jim and Aileen Bobryk, San Clemente	Barbara Barlois, San Clemente
Thomas Youngerman, San Clemente	Lynna Youngerman, San Clemente	Robin Schueler, San Clemente
Donna C. McGinnes, San Clemente	Lynette Finnila, San Clemente	Randal Seech, San Clemente
Dennis Clarke, Trabuco Canyon	Robert Hamilton, Long Beach	John Kaiser, Huntington Beach
Dr. James Gates, San Clemente	Kirk Rogers, Irvine	R. S. Alexander, San Clemente
Jeac Mullan, Mission Viejo	Dick Amato, San Clemente	Jeff Howard, Huntington Beach
Linda Funderburk, San Clemente	G. Shaw, San Clemente	P. A. Trigg, San Clemente
Susan Hagstrom, San Juan Capistrano	Lauren Halsted, San Juan Capistrano	John Callanan, San Clemente
Tori Haidinger, San Juan Capistrano	Tom Bonigut, San Clemente	Mike Evans, San Juan Capistrano
Addam Fazio, San Clemente	Linda Pyle, San Clemente	Marilyn Anderson, San Clemente
Anna Noble, San Clemente	Geo Kirkpatrick, San Clemente	Jack Davis, San Clemente
Jeff Petersen, Monarch Beach	Don and Kory Thomas, Huntington Beach	Donna C. McGinnis, San Clemente
Robert Von Kepner, San Clemente	Dee Brady, Capistrano Beach	Julie Fontaine, Irvine
Dave Perlman, Laguna Beach	Carol Farrell, San Clemente	B. L. Farrell, San Clemente
Dave Donaldson, San Clemente	Grant Ross, San Clemente	Mike Stockstill, Irvine
Ed Schlegel, Capistrano Beach	M. J. Winker, San Clemente	D. Abner, Costa Mesa
James Colston, Trabuco Canyon	Candace Newlon, San Clemente	Heather Mezak, San Clemente
Trevor Mezak, San Clemente	Samuel Salkin, San Clemente	Robert Fraser, Santa Ana
Joe and Nancy Severson, San Clemente	John Barnard, San Clemente	Jeanne O'Grady, San Clemente
Louise Reiner, San Clemente	Jon Pierce, San Juan Capistrano	Michael Susooth, San Clemente
Mathew Mais, San Clemente	Kailana Sweeney, San Clemente	Mary Reskusio, San Clemente
Cody M. Wilson, San Clemente	Eric Mehlberg, San Clemente	Randal Seech, San Clemente

TABLE 11.6-2
LIST OF ALL PERSONS WHO COMMENTED AT THE PUBLIC SCOPING MEETINGS

Kristen Penrod, Monrovia	John Dorey, San Clemente	Robert Hamilton, Long Beach
Camille Bertolet, Laguna Beach	Diane Hennessy, San Clemente	Nick Nosek, San Clemente
Dr. James Gates, San Clemente	Diane Coffin, San Clemente	David L. Ochoa, San Clemente
Margaret Maas, San Clemente	Gretchen Radzwill, San Clemente	Karen Phelps, Dana Point
Alan Schmiz, Dana Point	Stephanie M. Dorey, San Clemente, San Clemente City Council	Stephanie M. Dorey, San Clemente, San Clemente City Council
Andrew Castellano, Laguna Beach	John McGaffin, San Clemente	Jeanine L. Paquette, Corona Del Mar
H. Belmont, San Clemente	Gregory Edward Koch, Anaheim	Jayne Timberlake, Goleta
Jayne Timberlake, Goleta	Eric Holmes, Costa Mesa	Eric Holmes, Costa Mesa
Piper Walsh, San Clemente	Christopher Koontz, Orange	Nona Reimer, San Clemente
Nona Reimer, San Clemente	Michael Richardson, Apple Valley	Donald and Donna Running, San Clemente
Patricia Bagnard, San Clemente	Juana Mueller, Huntington Beach	Nancy Donaven, Huntington Beach
Jack Murphy, Lake Forest	M. Beauchamp, San Clemente	Mel Stone, San Clemente
Michael Bosse, San Clemente	Judy Kollar, Tustin	Duane Miller, Laguna Hills
Yaric Donde, Huntington Beach	Kathy Alvarado, Huntington Beach	Robert McCrae, San Clemente
Darlene H. Grimes, San Clemente	Robert Garin, La Jolla	Frank Weagaut, President – Caspers Park Volunteers, Dana Point
Harold W. Clark, Rancho Santa Margarita	George C. Allen, San Clemente	Charles W. Goodwin, San Clemente
Margaret Smiddy, Dana Point	Sieglirde Johnson, Laguna Beach	Ken Nielsen, San Clemente
Steve Weaver, San Clemente	Mr. And Mrs. Paul Zisakis, Huntington Beach	Paul Martinico, San Juan Capistrano
Daniela Mueller, San Clemente	S. Neustein, Aliso Viejo	John and Shannon Little, Aliso Viejo
William Ashbaugh, San Clemente	Eileen Boswell, San Clemente	Shirley Mayfield, Laguna Niguel
Stevie Younkin, San Clemente	Doug Younkin, San Clemente	Bettie Blauser, San Clemente
J. Corbett Donohue, Jr., San Clemente	Claire Sussex, San Clemente	Judy Weeks, San Clemente
Gene Wiancko, San Clemente	Richard and Joanne Gates, San Clemente	Jan Weaver, San Clemente
R. D. Duernberger, San Clemente	Elizabeth Balsamo, San Clemente	Herb Higgins, Norco
Jerry Buckley, Mission Viejo	Les Beauchamp, San Clemente	Michael A. Stontz, San Clemente
D. M. L. Beauchamp, San Clemente	Rick Landavazo, Valley Center	Chris Schmidt, San Diego
Ann Zemer, Irvine	Dick Susoeff, San Clemente	Andrew Fine, San Clemente
James C. Hill, San Clemente	Anna Mae Noble, San Clemente	Frank M. Haroldson, (no address given).
Renata Breisacher Mulry, Director, Research, Bexen Press	George Hubner, San Clemente	Sherry Donaldson, San Juan Capistrano
Mike Duncan, Buena Park	Shelly Morgan, San Clemente	Viola H. Tucker, San Clemente
Debbie Cook, Huntington Beach	Gregory Edward Koch, Anaheim	John W. Meiling, San Clemente
J. P. Ollivier, San Clemente	Max Harris, San Clemente	Michael J. Schoenwald, San Clemente
Ron Montgomery, San Clemente	Sam Perlow, San Clemente	Bruce Lane, Tustin
Thomas and Marilyn Eads, San Clemente	Melinda Stone, San Clemente	Pattie Meade, San Clemente
Bonnie M. Meredith, Dana Point	Luke Schmick, Laguna Niguel	Cindi Morgan, San Juan Capistrano
Stan Bengston,. San Juan Capistrano	Suzanne Perry, Lake Forest	Damian DiCarlo, Orange
Robert Fraser, Santa Ana	Peter Bunge, San Clemente	Geoff Harris, San Clemente
Robert Fairbanks, Mission Viejo	Ken Caresio, San Clemente	Mr. And Mrs. Al Eaton, Dana Point
Don Moe, Dana Point	Mark Hoover, Newport Beach	Paul B. and Cathryne MacNeill,

TABLE 11.6-2
LIST OF ALL PERSONS WHO COMMENTED AT THE PUBLIC SCOPING MEETINGS

		Mission Viejo
Jim Stoner, San Clemente	Anna Noble, San Clemente	Theola M. Faes, San Clemente
Jim Peacock, Capistrano Beach	Alvin Kaplan, Mission Viejo	F. Sassin, Capistrano Beach
W. J. & H. Polis, San Juan Capistrano	Viola A. McCaslin	Mary A. Thompson, San Clemente
James C. Hill, San Clemente	Sheila Graham, Upland	Gayle Ackerman, Development Services Manager, City of Lake Forest
Keith Hunter; Dana Point	David Kancsar, Las Vegas NV	Duane Selby, San Clemente
Mike Nelson, Capistrano Beach	Paul Shapiro, Portland OR	Mike Ward, Rancho Santa Margarita
Dan Reilly, Encinitas	Craig Kemnitz, Chicago IL	Terrence Robinson, Evanston IL
John Singer, Mill Valley	Christopher Henke, Toledo OR	Robert Hamilton, Long Beach
Ryan Yonkers, Lakewood OH	Dennis Ordiway, San Clemente	Darin R. McClure, San Clemente
Warren Overman, Gaithersburg MD	Louise Anderson, Mission Viejo	Lisa Stein, Brooklyn NY
Beverly Loney, Laguna Niguel	Paul Shapiro, Portland OR	Lucas Nagy, Richmond VA
Dan Melhado, no address given	Drew Hazzlerigg, Texas	Ken Trotta, San Clemente
Jim and Donna Callas, San Clemente	Julia Dewees, San Clemente	Eric Keen, Mission Viejo
Roger Mason, Irvine	Julia Deweese, San Clemente	Julia Deweese, San Clemente
Julia Deweese, San Clemente	United States EPA	Julia Deweese, San Clemente
Sherrell B. Donaldson, San Juan Capistrano	Danielle Braham, Laguna Beach	Allen Greenwood, San Diego Trout, San Diego
James E. and Nancy C. Lowe, San Juan Capistrano	Richard Rozzelle, Associate Park and Recreation Specialist, Department of Parks and Recreation, Orange Coast District, San Clemente	Nora C. Jans, Laguna Niguel
Yaric Donde, Huntington Beach	Kathy Alvarado, Huntington Beach	Diana Hammer, San Clemente
Tanya Porter, San Clemente	Beck Post	Mary A. and Robert Thompson, San Clemente
Thomas M. Rogers and Leslie Millerd Rogers, San Juan Capistrano	Edgar C. Buckingham, Monarch Beach	Gloria Powell, San Clemente
Sarah Whelpley, San Clemente	Steve and Christina Fazio, San Clemente	Paige Ingham, San Clemente
Claire Sussex, San Clemente	Jena Sussex, San Clemente	Cynthia Leach, Dana Point
Frank Weagant, President Caspers Park Volunteer Naturalists	Heather Mozak, San Clemente	Ralph Johnston, San Clemente
Ravin Carlson	Beverly J. Lopez, Laguna Nigel	Eva-Maria Swedlow, Mission Viejo
Cathleen Brannon, San Juan Capistrano	Rick Hazard, San Clemente	Julie Hazard, San Clemente
Karen Dugan, San Clemente	Pat Dugan, San Clemente	Sison E. Hazston
Majie Schlegel, Capistrano Beach	John Grabowski, Leucadia	Laurie Fitzgerrell, Laguna Beach
Dorothy Geisler	Jane B. Clancy	Lisa and Tony (last name illegible)
Annette and Jim Stoner, San Clemente	Tony Forbes, Balboa Island	Alton and Yvonne Cullen, San Clemente
Nancy Donaven	No name given.	Pauline Faye, San Clemente
Gary W. Graham, San Clemente	Marinka Horack, Huntington Beach	Chris Evans, San Clemente
Candace and Joe Newlon, San Clemente	Delores Brady, Capistrano Beach	Mary F. and Nicholas C Karnatis, San Clemente
Carolyn Beak, San Clemente	Yerina M. Soares	Juana Mueller, Huntington Beach
Dave Saresay, San Clemente	Jayne Timberlake, San Clemente	Diane Hennessy, San Clemente
Judy Kollan, Tustin	L. Mosquin	Jamie Howard, Huntington Beach

TABLE 11.6-2
LIST OF ALL PERSONS WHO COMMENTED AT THE PUBLIC SCOPING MEETINGS

Jackson Tarango (dog), San Clemente	Domwel J. Lzcavdli, San Clemente	Tim and Barbara Elsner, San Clemente
Colleen H. Petre, San Juan Capistrano	Norm Savara, San Clemente	Linda Pyle, San Clemente
Denise Redvero-Higgins, San Juan Capistrano	Tom Hardinger	Nina Nicole Galvan
Mark Tilton and Dawn O'Hara, Capistrano Beach	Linda Wolfe, Huntington Beach	Nancy Harris, Huntington Beach
Louise Anderson	Mike and Melinda Stone, San Clemente	Steve Hommel, Laguna Beach
Paul Bray, San Clemente	Joyce Roy, San Clemente	Sue Schaer, Laguna Niguel
Eric Rendon, San Clemente	Robin Schueh, San Clemente	Michael Richardson, Apple Valley
Tom and Lynna Youngerman, San Clemente	Bill Langford, San Clemente	Steven Tribucher, San Clemente
Eddie Rose, Laguna Niguel	Karen Phelps, Dana Point	Danielle Braham, Laguna Beach
E.. Bodiford, San Clemente	Mark T. Henze, San Clemente	Gregory Edward Koch, Anaheim
Ron and Anna Winship, Newport Beach	George Hubner, San Clemente	Cory Swift, San Clemente
Leon J. Baginski, Mission Viejo	Victoria Keswick, Rancho Santa Margarita	Gary Keswick, Rancho Santa Margarita
Jim and Joe Ann Douglas, San Clemente	Shelly Katke, San Clemente	Annette Dragusku, San Clemente
Sherrell B. Donaldson, San Juan Capistrano	Paul Carlton, San Clemente	James E. and Nancy C. Lowe, San Juan Capistrano
Jim Cokas	Maiju Schlegel, Capistrano Beach	George T. Kirkpatrick, San Clemente
Camille Bertolet, Laguna Beach	Beatrix V. McLaughlin, San Clemente	Robert E. McLaughlin, San Clemente
Phoebe Stockwell, San Clemente	Wendy Morris, San Clemente	Gayle Simon, Encinitas
Donald Perlman, Sierra Club, Los Angeles Chapter, Sierra Sage Group	Phyllis Watson, San Juan Capistrano	Kathleen Pestal and Karly Pearson, San Clemente
Thomas and Leslie Millerd Rogers, San Juan Capistrano	Liz Kuhns, San Clemente	Diane Teran Blaisure, Newport Beach
Carol Boot-Storie, Laguna Niguel		

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
Comments Related to Alternatives	
2.0, 3.0, 4.0	Consider other alternatives to the toll road: light rail, public transportation, high speed rail. La Pata to Cristianitos should be studied. Consider expanding existing roads and public transportation. Consider non-road-building alternatives. Find other solutions besides freeways. Extend surface streets instead of building the toll road. Improve the existing freeways. Develop a better solution than the toll road. Widen I-5 through San Clemente. Widen I-5. Include an alternative to extend Avenida La Pata from Ortega Highway to Cristianitos Road. Arterials alignment should include widening of Vista Hermosa. Consider connecting Camino De Los Mares with Camino Las Ramblas. Consider the Arterial Alternatives. Consider expanding Vista Hermosa. Need to consider alternatives that minimize impacts. Continuation of La Pata and widening I-5. Build via Cristianitos not Pico. No Project Alternative. Connect transportation to high speed buses on I-5. Include no toll road option. Make a thruway of Antonio Parkway to La Pata circumventing Pico. Improve existing toll roads. Include Vista Hermosa as an alternate route. Include a thorough description of all alternatives including implementation plan. Include a "real" presentation of a No Project Alternative including other means of transportation; reliable data and no "pie in the sky" figures. Include parallel bikeway facility adjacent to toll road to capture local trips. Potential for additional on/off ramps from tollway to San Clemente. Range of alternatives. Elevate the ramp over the creek and join I-5 at Camp Pendleton. Include the completion of Avenida La Pata from Ortega Highway to Cristianitos Road as an alternative. Interested in potential changes to interchange at I-5 and El Toro Road and Lake Forest. Use existing freeways and surface streets. Use existing roads.
2.0	Include alternative reports to eliminate alternatives that are not feasible or do not meet the project purpose.
2.0	Provide maps with all of the proposed alternatives and cost estimates of all the alternatives.
2.0	Equal level of analysis for each alternative.
2.0	Who would pay for arterial improvements and Antonio Parkway?
1.0	Demonstrate need for the corridor; include purpose and need of FTC-S.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
Comments Related to Biological Resources	
4.11	Unmitigable impacts on wildlife sanctuaries and natural habitat.
4.12	Impacts related to endangered, threatened and sensitive species.
4.11	Degree of destruction of habitat; habitat fragmentation (short and long term).
4.11	Impacts to wildlife; destruction of and impacts to wildlife corridors; impacts related to wildlife movement; migration; dispersal.
4.11	Impacts related to loss of genetic diversity.
4.11	Impacts related to spread of exotic species and to non-native seed dispersal.
4.10, 4.11, 4.12	Mitigation measures for impacts to biological resources.
4.10, 4.11, 4.12	Impacts related to ecology.
4.11	Impacts related to birds and migrating birds.
4.11	Impacts related to habitat diversity and biodiversity.
4.1	Conduct full and independent studies of mitigation success of existing toll roads.
4.10	Impacts related to wetlands, riparian resource and water resources.
4.12	Impacts related to mitigation for steelhead trout.
4.11	Impacts related to the NCCP.
4.10, 4.11, 4.12	Impacts related to biological resources.
4.11	Impacts related to frogs.
4.12	Impacts related to steelhead. Include absolute protection (not mitigation) for steelhead trout.
4.11	Impacts related to critical habitat.
4.8, 4.10	Impacts related to Cristianitos Creek.
4.12	Update the Orange County NCCP, 1996.
4.12	Focused surveys for Quino checkerspot.
4.12	Include impacts/studies related to swamp toad including location of individuals, breeding and non-breeding extent of habitat ranges.
4.12	Willow flycatcher; least Bell's vireo; tidewater goby; steelhead trout; red-legged frog; California gnatcatcher and other federally listed and sensitive species.
4.12	Include impacts related to edge effects.
4.12	Ocean species around San Mateo Point.
4.11	Wildlife includes mammals, birds, amphibians, reptiles, fish, and invertebrates. Use "A Checklist for Evaluating Impacts to Wildlife Movement Corridors" (Beier and Low 1992).
4.11	Noise as related to sensitive biotic resources.
4.10	Channelization of "virgin" streams.
4.9	Include a baseline study of the marine environment at the base of San Mateo Creek; the effects of runoff from roads and new development; birds; fish; kelp; lobsters; surf grass; SCE kelp and reef mitigation.
4.9, 4.10	Impacts related to tidal life; surf zone life; beaches from San Clemente State Park to San Onofre.
4.11	Impacts related to coastal sage scrub.
4.12	Maintenance of fish and game and habitat.
4.12	Impacts related to survival and recovery of endangered species.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
4.10, 4.11	Impacts related to aquatic resources.
Comments Related to Open Space and Recreation Uses	
4.5, 4.25	Unmitigable impacts on open space such as parks and trails.
4.25	Impacts related to San Onofre State Park and San Mateo Campground.
4.25	Impacts on and loss of open space. Protect available open space.
4.25	Impacts related to Mission Viejo Land Conservancy and loss of Conservancy values to visitors.
4.25	What right do you have to put your road through Rancho Mission Viejo Land Conservancy?
4.25	Include mitigation of parklands.
4.25	Acreage in San Onofre State Park required for tollway.
4.25	Impacts related to Caspers County Park.
Comments Related to Air Quality	
4.7	Project will create less smog.
4.7	Increased air pollution.
4.7	Emissions pollution from helicopters and traffic on toll road.
4.7	Include number of tons of auto emissions reduced along I-5 through San Clemente with the toll road.
4.7	Noxious fumes from tollway.
4.7	Impacts related to diesel fumes, contaminated air.
Comments Relating to the Scoping Meeting and Process	
The property owner of the meeting location prohibited the use of signs in the building.	Signs prohibited at the meeting. Concerns related to prohibition of signs at the meeting; that everyone in the meeting be able to express their opinions.
11.0	Concern that comments in the meeting may be non-factual.
11.0	Concern related to need for more FHWA representation at the meeting.
11.0	EIS process needs to be transparent and open to the public. Public has been denied input to alternatives development. Include the public in the planning process.
11.0	Contact list should be provided of representatives from U.S.EPA, ACOE, USFWS and Caltrans. Representatives of these agencies should be at the next scoping meeting.
The cost of scoping meetings is not an environmental issue under CEQA and NEPA.	What is the cost of this meeting?
11.0	Will the comment cards from this meeting be included in the federal record? Transcript and comment cards requested.
11.0	Why did the meeting start so late? Speakers should be limited to 3 minutes each to give more people a chance to speak.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
11.0	Why was I misled that the FHWA was hosting this meeting? Falsely advertised that meeting was to let FHWA know our concerns. No representatives from FHWA were present on Monday night. Who are the officials here? Why isn't FHWA here? TCA said the scoping meeting was theirs but FHWA notice published in Federal Register indicated it was FHWA's; scoping process is a fraud.
11.0	TCA was not listening to us.
11.0	Not confident comments would be forwarded to FHWA.
11.0	Audience's concerns were not addressed.
11.0	TCA treated meeting as a formality.
11.0	Opposed to the handling of the scoping process.
11.0	Comments related to 3/26/01 scoping meeting: inadequate press coverage; only one FHWA representative was present; we must trust that TCA will get comments to Washington D.C.; over 1,000 attended; many attendees carpooled; TCA PR attempt; meeting is a farce; signs prohibited; TCA said it was a TCA meeting, not FHWA meeting; a commentor said that TCA does a good job of managing natural resources and creating mitigation; meeting started 20 minutes late but 20 minutes was not added to end of meeting; moderator was repeatedly asked to add comments to flip chart; distrust that all comment cards will be given to FHWA; many types of commentors were lumped as environmentalists; TCA is not trusted; TCA must be removed from the environmental process; "locally preferred alignment" not preferred; toll road would divert regional traffic from San Clemente; more people are in favor of toll road but are not as vocal as opponents; 45 people spoke against toll road and 3 in favor; attendees had serious concerns about endangered species, water and air quality, state parks, clean beaches, way of life; newspaper article implied those in favor of toll road aren't as vocal or active as those opposed; please hear community views. Other comments: address given to send comments to FHWA; LA times address given.
11.0	Send me all responses to all questions.
Comments Related to Land Use and Growth	
4.2	Creation of urban sprawl; increased urban sprawl.
6.0	Impacts related to development and induced development. Impacts related to growth inducement. Comprehensive analysis of growth inducement.
4.2	Impacts related to increased development densities and increased development.
4.2	Impacts related to land use.
4.2, 6.0	Development along the toll road.
6.0	Review past similar roads and include resulting amount of development.
4.2	Impacts related to land use and planning.
Comments Related to Water Resources and Water Quality	
4.9	Urban runoff. Impacts related to runoff.
4.9	Water quality. Impacts relate to clean water issues.
4.9	Impacts related to marine environment and ocean pollution, the Pacific Ocean, water pollution at beaches and cost of ocean clean-up.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
4.15	Impacts related to beach closures.
4.8	Impacts related to San Mateo Creek.
4.8	Impacts related to San Onofre State Beach.
4.8	Impacts related to fresh water.
4.8	Impacts related to groundwater usage.
4.15	Impacts related to surf break and surfing at Trestles.
4.8	Study should include sand balance.
4.8	Impacts related to location hydraulics.
4.8	Impacts related to Old Mans.
4.8	Impacts related to sediment transport; wave quality.
4.9	Include scientific evidence of effectiveness of water quality mitigation measures.
4.8	Include honest, in-depth analysis of how impervious cover would affect watersheds impacted by toll road and near-by development; reference to other projects' impacts related to the amount of impervious cover on watersheds.
4.8	Include studies related to Q7-10 stream base flow; groundwater levels and contamination; point and non-point source pollutants; increased stream flooding; low flow maintenance model; impervious runoff impact; water balance model.
4.8	Study sand replenishment out of San Mateo Creek.
4.8	Effects of urban run-off into creeks.
4.8	Catalog of storm drains for first flush and secondary flows.
4.15	Include impacts related to coastline.
4.9	Runoff management is a known failure.
4.15	Impacts related to shoreline degradation.
4.8	Impacts related to the watershed, local hydrology.
4.15	Include a review of similar projects on similar beaches.
Comments Related to Public Services and Utilities	
4.24	Demands on water.
4.24	Impacts related to crime.
4.24	Sewage generation.
4.24	Impacts related to fire hazard.
4.24	Impacts related to evacuation plans. Study evacuation route from San Clemente in case of an emergency at San Onofre Power Plant.
4.24	Impacts related to schools including Tesoro and San Clemente High Schools.
4.24	Power needs for new housing; source of water for new residents.
4.24	Impacts related to public services and utilities including police.
Comments Related to Socioeconomics and Environmental Justice	
4.4	Elimination of homes and buildings. Impacts related to relocation.
4.4	Community character. Impacts related to City character.
4.4	Impacts related to low/limited income users.
4.4	The toll road is discriminatory to poor people.
4.4	Impacts related to population increase.
4.4	Impacts related to environmental justice.
4.4	Impacts related to economy.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
4.4	Impacts related to socioeconomics of tourism. Impacts related to the surfing industry and tourism.
4.4	Impacts related to socioeconomics.
4.4	Impacts related to property values.
4.4	Include study related to effects of development. Include statistics and scientific reports.
4.4	Include analysis of land prices in Rancho Mission Viejo with and without the toll road.
4.4	Impacts related to socioeconomics of ethnic diversity.
4.4	Impacts on individual cities including San Juan Capistrano, San Clemente related to widening of arterial streets and highways
4.4	Revenue decline.
4.4	Include discussion of what the No Build or I-5 Expansion will do to business and homes.
4.4	Landowner rights. Rights of organizations entrusted with open space.
4.4	Impacts related to economy and environment if road is not built.
4.4	Impacts related to the costs to the City of San Clemente.
4.4, 6.0	Impacts related to growth in residential and business development.
4.4	Include impacts to residents and workers now and in the future if the Central Corridor is selected. Emphasize impacts to people, not fish, animals and vegetation.
4.4	Interested in review of right-of-way required for I-5.
Comments Related to Traffic	
3.0	Increases in traffic.
3.0	La Pata should become a regional road.
3.0	Use the Harvard Study for modeling.
3.0	Impacts related to traffic congestion.
3.0	Traffic evaluation should include a population radius.
3.0	Impacts related to regional traffic.
3.0	Truck/automobile mix.
3.0	Study effects of growth on traffic congestion.
3.0	What are the projections for needing to expand I-5 through San Clemente? Will it have to be double decked?
3.0	Traffic on I-5 and 91 with no widening planned.
3.0	New traffic study.
3.0	Local San Clemente traffic study.
3.0	Include discussion of projected travel patterns for the area.
3.0	Impacts on I-5 traffic through Camp Pendleton.
3.0	Include impacts of traffic and circulation associated with Ladera Ranch on Oso.
3.0	Include estimated increases in traffic congestion on I-5 and surface streets if FTC-S is not built.
3.0	Include current I-5 traffic counts north and south bound through San Clemente.
3.0	Estimates of I-5 traffic reduction from tollway.
3.0	Increased local traffic.
3.0	Include impacts related to traffic bottleneck at 241 south and I-5 south.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
Comments Related to Objectivity of the EIS/SEIR and Technical Studies	
--	Concerned about the objectivity of the EIR.
3.0	Need an independent and objective traffic study. Traffic study must be objective and independent. Study must be non-partisan. Prove validity of TCA's traffic projections.
ES	Analysis independent of TCA needed.
4.0	Address all environmental issues and be objective.
2.0, 4.0	Include thorough and objective alternatives analysis.
3.0	Include studies related to objective traffic study, independent of TCA.
--	The project is motivated by self interest. There is no recourse once the road is built. Concerned about objectivity of the study.
--	Why are the only people conducting environmental studies from the TCA? Of course the study will be biased! TCA should not be in charge of the consultants providing data to the EIS.
Comments Related to Noise	
4.6	Impacts related to noise.
4.6	To what degree will traffic noise on I-5 through San Clemente be alleviated?
4.6	Will sound walls be constructed on I-5?
Comments Related to Aesthetics, Light and Glare	
4.18	Impacts related to light and glare.
4.18	Impacts related to natural beauty.
4.18	Impacts related to visual pollution.
4.18	Impacts to visual resources.
4.18	Impacts related to aesthetics.
Comments Related to Cumulative Impacts	
5.0	Increase in electric rates when new homes go in.
5.0	Cumulative impacts to water quality from the road and development.
5.0	Impacts related to cumulative noise.
5.0	Include water issues – California supply; what will happen to the future generations from continued development of roads and homes and destruction of the environment.
Comments Related to Long Term Impacts	
4.0	Long term impacts.
Comments Related to Construction Impacts	
4.0	Construction impacts related to air quality; noise; traffic; waste.
4.7	Include means of controlling pollution created by construction.
3.0	Impacts of construction traffic and the effects of laborers driving from the Inland Empire.
4.9	Water pollution due to construction runoff and debris.
4.0	Impacts related to construction; displacement of plant and animal species; runoff and debris in the creek; tenure of the project to determine the hardship it will cause.
Comments Related to Cultural and Paleontological Resources	
4.16	Impacts to cultural resources and sacred ground to Indian tribes.
4.16	Impacts to paleontological resources.
4.16	Potential damage to historic sites along toll road.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
4.16	Impacts related to Indian burial area near San Mateo State Park.
Comments Related to Hazardous Materials	
4.17	Impacts related to hazardous materials.
4.17	Impacts related to environmental safety.
4.17	Impacts related to public health.
4.17	Impacts related to lead toxins from bullets on Camp Pendleton.
4.17	Impacts related to contaminated soil.
Comments Related To Fiscal Issues That Are Not Environmental Issues Under CEQA and NEPA	
2.0	Costs of tollway directly paid by San Clemente residents.
2.0	Financial and social burden.
2.0	Can we afford the toll road? Impacts to tax payers.
2.0	Evaluate fiscal viability.
1.0	Is TCA a private or public agency? What is its source of funding? How many employees? What do the noncompete clauses say? If tolls are not high enough because of lack of use, what is the rationale for more?
4.27	Include cost benefit analysis of corridor payback. Compare FTC and San Joaquin Transportation Corridor budgets.
3.0	Prove that the toll road can simultaneously alleviate congestion on I-5 and not cost taxpayers money.
--	Unbiased fiscal studies.
1.0	Legislation regarding toll roads, protection of passing costs onto the state or federal government, source of private funds, role of FHWA.
Comments Related to Camp Pendleton	
4.21	Impacts related to Camp Pendleton.
4.21	End farming on Camp Pendleton and return land to wetlands.
4.21	Southern extension should go further south into Camp Pendleton to safeguard San Onofre State Beach.
Other Comments	
4.0	Impacts related to future generations.
3.0	Regional traffic solution with east-west connection from I-15 to SR 231, SR 90 or I-5.
3.0	Benefits of third way to and from San Clemente.
4.26	Consider the adverse environmental effects of the project.
4.15	Probability that coastal commission will approve.
4.0	Impacts related to health, well being and mental state of Orange County residents.
4.0	Studies should be based on 50 and 100 year projections.
4.0	Include how bad for the environment a project must be before it is rejected.
3.0	Include proportion of San Clemente residents expected to use toll road and number of trips vs., non- toll road; assumptions made on expansion of I-5 between San Clemente and San Diego.
3.0	Accessibility for low income drivers.
11.0	Previously submitted comments including scopes of work and evaluation criteria/impact analysis; traffic; alternatives development; induced growth; air quality; areas of controversy.
8.0	Analysis should include full mitigation costs.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
--	How does the project subsidize private enterprises.
--	Who will the operators will be; what their track record is with public projects and costs; how the public will be compensated.
1.0	Is an EIR being prepared?
1.0	Who was the lead agency on the original EIR? Who certified the original EIR?
4.0	Who is the lead to certify the federal document?
4.0	Impacts to way of life
4.0	Impacts related to local culture.
4.0	Impacts related to Trestles neighborhood, especially noise; air quality, light pollution, visual, through traffic.
8.0	Include a mitigation measure to reconfigure south El Camino Real to one lane in each direction.
ES	Include description of decision making process and responsibilities.
4.0	Impacts related to 100,000 new residents near the San Onofre Nuclear Power Plant
--	Release all supporting data prior to or with the reports.
--	Review impacts of 241 on Laurel and Laguna Canyons.
--	Design homes people can afford.
Table of Contents	Please make the EIR/EIS available on the Internet.
4.0	Impacts to Stonecliff Community.
8.0	Include mitigation results of 73 and 241.
4.0	Impacts related to public well being.
--	Impacts related to I-5 and other roads due to noncompete agreements.
4.0	Include baseline studies to judge future impact.
3.0	Demographics of who will be using the road
4.0	Psychological effects on people living in areas with no open spaces who moved to areas with open spaces.
4.0	Include a document that expresses the understanding that environment includes the interconnectedness of life and surrounding environment.
--	Provide examples of previous highways successfully built in environmentally sensitive areas with successful mitigation; more information about California transportation system.
4.0	Include number of current and projected new residents expected to use toll road.
Comments Which State Opinions or Discuss Issues Which are Not Environmental Issues Under CEQA and NEPA	
Comments represent opinions or identify issues which are not environmental issues under CEQA and NEPA.	Eastern Alignment is best. The arterials should be completed. Traffic is a regional issue. Oppose expansion of toll road through Chino Hills State Park. Purpose of the toll road is for traffic mitigation for the proposed county airport. Existing tollways worsen traffic. Public dialogue was restricted because the meeting started late. The toll road is a global issue. TCA is not accountable to anyone. The toll road would improve existing traffic congestion and air quality. Build the toll road to Palm Springs. Toll road will be legacy to children.

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
	The toll road is needed. Toll road would alleviate traffic. If traffic needs to be mitigated, why does it need to be a toll road? The reason for the toll road is to open up land for development. Opposed to widening I-5 along the coast. Freeways cause more traffic. Disagree with specifics in 1991 EIR. California's population will increase even if the toll road is not built. Consider legacy to children including affordable housing and being able to get around. Toll road is being built to further development. Traffic will increase. Developers have an interest in seeing the toll road built. Individuals should get involved with organizations like Friends of the Foothills, Surf Rider Foundation and Sierra Club. These organizations should work with TCA to make decisions. Existing toll roads are underutilized and cause pollution. Choose the No Build Alternative. Supports the East Alignment only. Traffic relief is needed. Prefers to have the road be a state highway. Opposed to any plan that ends in the San Mateo Creek area, San Onofre State Park, San Mateo Campground. Opposed to the corridor especially the FEC, AF and C alignments. Opposes alignments in the vicinity of the San Mateo watershed. Additional road is needed because of current traffic conditions. Toll roads will relieve congestion, give people more time to spend with families and positively influence economy. Concerns of the Surf Rider Foundation expressed to TCA in 1995 have not been addressed. Toll road is unnecessary. People come first before animals. The city and county control urban sprawl and building. Opposed to widening I-5. Favors the Far East alignments. Toll road is a global issue. Building the road is not the solution. Decisions should not be made by people who have career or profit at stake. The toll road is necessary to alleviate traffic and provide emergency access. Opposes an airport at El Toro. If a road is necessary it should be funded like other roads. Purpose for toll road is to open land for development. Opposes easterly alignments. Carpool lanes are not realistic. Smart road idea makes sense. Consider a scenic highway with very limited access that would dip into San Diego County in Camp Pendleton. Opposed to having all the proposals ending on I-5 at the San Diego County line. Concerned about environmental equity. If the eastern alternative is built, dedicate part to a rail bed for high speed rail to San Francisco. Studies are a waste of time and money. People are more important than animals. No studies are needed. Build the least expensive route to keep the toll as cheap as possible. Tolls are too high. Use the plans and conservation philosophy used on 241. The toll road is

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
	needed that continues to Basilone Road. Build FEC Alignment only. Other alternatives will ruin San Clemente. Limiting access only to I-5 will adversely affect economy. Wildlife along Far East Alignment can be saved. Far East Crossover is a very bad idea. Huge impact to existing homeowners in Talega. Supports the alternatives east of San Clemente to Basilone Road. County and state highway system will adequately handle traffic for decades to come. Existing toll roads are not financially sound. Place more emphasis on what the people want who live in the area. TCA is not professional and disrespects the community. I demand a fair public hearing. Who is taking responsibility for people who become sick, endangered species and excess runoff. It is apparent the people of south county care about the quality of the environment that borders our city. We want to preserve the wilderness at the expense of adding new roads. Include whether or not we should support the bail out of miscalculations of Lockheed Martin Corp. Let's quit while we're ahead. Your literature is inappropriately biased in that it totally leaves out information on the two No Build Alternatives, nor does it address issue of light rail along side I-5. This road must come out south of San Clemente. Use the Far East Corridor. San Clemente is a nightmare due to building and NAFTA. There is a good chance of relief from extending the corridor. I-5 widening or arterial improvement would have fewer biological and aesthetic impacts. Your meeting on 3/26/01 was a sham, started 30 minutes late but closed on schedule. You opened my eyes to the fact that you aren't concerned about our opinions. Not wanted! Include more publicity to all communities from Laguna Niguel, El Toro, Lake Forest, Laguna Woods and Aliso Viejo about your great nature walks in the region where the toll road is going. There is a lot of negative publicity about destroying the ecology of the area and it can all be worked out. Toll road is essential. The only logical alignment is Alignment 7. The Far East Corridor is just open flat space, so it should go on [illegible word] spot. I don't see any problems with either the Cristianitos or the Ag Field Variation. We need it! People who live in San Clemente don't want a toll road. We don't believe a toll road would relieve congestion. It would open up land for more development and more congestion. Include studies of parkway concepts such as the Garden State Parkway in N.J., the Palisades Parkway in New York – N.J., the Smokey Mountain Parkway in Virginia. Project most desired is the Far East Corridor. Require TCA board members to hike along San Mateo Creek to Trestles Beach and spend the afternoon there. Far East Corridor is the only reasonable alternative because other

TABLE 11.6-3
SUMMARY OF COMMENTS FROM THE SCOPING MEETINGS AND WHERE IN THE EIS/SEIR THEY ARE ADDRESSED

Section/Sections in the EIS/SEIR Where Comments are Addressed	Comments
	alignments do not provide true alternative to I-5; will cause greater disruption to traffic and residences along Pico; will increase noise and pollution to existing homeowners; elevated roadways will block sight lines to Pacific; will reduce customer base and property values. Give more concern to human beings than "bugs and bunnies." Please listen to the surfing community. Toll roads are a necessary part of the regional transportation solution. Not necessary to destroy sensitive areas like San Mateo Creek. If cities vote to increase population, they need to provide roads for people to drive on. We favor 7, 7 Swing and 7 Far East Crossover.

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
Summary of Comments from Federal Agencies on the Notice of Preparation		
United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (July 31, 2001)	Concern over potential impacts to federally endangered steelhead species in the San Mateo Creek watershed.	4.12
United States Department of the Interior, Fish and Wildlife Service (July 16, 2001)	Description of the environment in the vicinity of the project.	2.0
	Discussion of purpose and need for the project.	1.0
	Description of the proposed project.	2.0
	Quantitative and qualitative assessments of biological resources and habitat types impacted.	4.10, 4.11, 4.12
	Assessment of direct, indirect, cumulative project impacts and growth accommodating effects of the project to fish and wildlife habitats.	4.0, 5.0, 6.0
	Concern over sensitive and declining habitat types.	4.11
	Maps and tables summarizing acreages and locations of habitat types.	4.11
	Analysis of impacts to wildlife movement.	4.11
	Proposed measures to avoid and minimize impacts and mitigate impacts to wildlife movement.	4.11
	Assessment of potential impacts to wetlands and jurisdictional waters of the United States.	4.10
	Proposed measures to avoid and minimize impacts and mitigate impacts to wetlands and jurisdictional waters of the United States.	4.10
United States Department of the Interior, United States Geological Survey (no date)	Requested change in address.	--
Federal Emergency Management Agency (July 29, 2001)	Project elements may physically affect Special Flood Hazard Areas (SFHAs) shown on Flood Insurance Rate Maps (FIRMs).	4.8
	Application for Conditional Letters of Map Revision.	--
Summary of Comments from State Agencies on the Notice of Preparation		
State of California Department of Transportation (August 9, 2001)	Identify all environmental impacts and mitigation measures.	4.0
	Evaluation of environmental factors that affect transportation and traffic.	3.0, 4.0
	Traffic analysis (Traffic Impact Study).	3.0
	The consequences of the Non-Compete Zone.	3.0
	Impacts on recreation resources.	4.45
	Regional air quality conformity analysis.	4.7
	Cumulative impacts to biological resources.	5.0
	Review of regional groundwater records.	4.9
	Lists of relevant wells and recent and historic groundwater elevation for the wells.	4.9
	Water quality mitigation with reference to the Runoff Management Plan.	4.9

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Noise technical report preparation in accordance with Caltrans Noise Protocol.	4.6
	Relocation impacts as addressed in the socioeconomic technical report and the draft relocation impact report.	4.4
	Coordination with Caltrans on appropriate mitigation measures for aesthetics and visual impacts.	4.18
	Cultural assessments which pertain to the California Register and cultural resources as presented in state law.	4.16
State of California, The Resources Agency, California Coastal Commission (June 26, 2001)	Requested placement on mailing list for the San Francisco, Long Beach and San Diego District offices.	--
	Federal Coastal Zone Management Act Consistency Certification and Coastal Development Permit.	4.15
	Review under Section 307(c)(3)(A) of the Coastal Zone Management Act.	4.15
	Will combine coastal development permit application and consistency certification into one staff report and a single public hearing.	4.15
	Will commit that both items will be handled by one staff member from the Commission's federal consistency staff in San Francisco.	4.15
	Analysis of stream crossings with potential downstream effects.	4.9
State of California, The Resources Agency, California Department of Fish and Game (CDFG, July 10, 2001)	Purpose and need for the proposed project.	1.0
	Description of the proposed project.	2.0
	Evaluation of alternatives with respect to fish, wildlife and native plants of the state.	4.11
	Minimization of impacts to sensitive biological resources.	4.10, 4.11, 4.12
	Potential impacts to habitat integrity.	4.11
	Concern over fragmented habitats and reduced wildlife mobility even in the presence of wildlife corridors.	4.11
	Concern over decreased water quality due to road runoff.	4.9
	Habitat loss due to development caused by the presence of the road.	4.11
	Preference for the I-5 Widening or Arterial Improvements Alternatives.	2.0
	Requests development of at least one additional alternative that would reduce congestion at peak hours.	2.0

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Assessment of rare plants and rare natural communities.	4.12
	Assessment of sensitive fish, wildlife, reptile and amphibian species.	4.12
	Focused species specific survey.	4.12
	Consultation with the United States Fish and Wildlife Service to develop species specific survey procedures prior to initiation of field work.	4.12
	Rare, threatened and endangered species.	4.12
	Consultation of CDFG's California Natural Diversity Data Base for identification of sensitive species and habitat including Significant Natural Areas.	4.12
	Direct, indirect and cumulative impacts expected to adversely affect biological resources.	4.0, 5.0
	Description of regional setting.	4.0
	Impacts to public lands.	4.0
	Discussion of impacts to open space.	4.0
	Discussion of impacts to adjacent natural habitats.	4.0
	Discussion of impacts to riparian ecosystems.	4.10
	Discussion of impacts to wildlife corridor/movement areas.	4.11
	Maintenance of wildlife corridor/movement areas.	4.11
	Impacts to wildlife access to undisturbed habitat and perennial water sources.	4.8, 4.10, 4.11
	Maintenance of wildlife access to undisturbed habitat and perennial water sources.	4.11
	Caltrans data on the effectiveness of structures installed to maintain wildlife corridors.	4.11
	Discussion of impacts associated with increased lighting.	4.18
	Mitigation measures associated with increased lighting.	4.18
	Discussion of impacts associated with increased noise.	4.6
	Mitigation measures associated with increased noise.	4.6
	Discussion of impacts associated with increased human activity.	4.0
	Mitigation measures associated with increased human activity.	4.0
	Discussion of impacts associated with changes in drainage patterns.	4.9
	Mitigation measures associated with changes in drainage patterns.	4.9
	Discussion of impacts associated with changes in water volume in streams and water courses on or near the project site.	4.8, 4.9, 4.10

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Mitigation measures associated with changes in water volume in streams and water courses on or near the project site.	4.8, 4.10
	Discussion of impacts associated with changes in water velocity in streams and water courses on or near the project site.	4.8, 4.10
	Mitigation measures associated with changes in water velocity in streams and water courses on or near the project site.	4.8, 4.10
	Discussion of impacts associated with changes in water quality in streams and water courses on or near the project site.	4.9.
	Mitigation measures associated with changes in water quality in streams and water courses on or near the project site.	4.9
	Discussion of impacts associated with soil erosion in streams and water courses on or near the project site.	4.9
	Mitigation measures associated with soil erosion in streams and water courses on or near the project site.	4.9
	Discussion of impacts associated with sedimentation in streams and water courses on or near the project site.	4.9
	Mitigation measures associated with sedimentation in streams and water courses on or near the project site.	4.9
	Effectiveness of filtration devices designed to reduce the level of pollutants in road runoff.	4.8, 4.9
	Discussion of impacts to wildlife habitat in streams and lakes due to potential pollutants in road runoff.	4.11, 4.9
	Reduction of pollutant levels in runoff by the use of filtration devices or other means.	4.9
	Discussion of the operational effectiveness of filtration devices as observed on previous toll road projects.	4.9
	Analysis of the potential for growth inducement.	6.0
	Cumulative effects analysis.	5.0
	Analysis of the projects effect on regional and subregional conservation programs.	5.0
	Consistency with the Southern Orange County Natural Communities Conservation Planning (NCCP) program.	5.0
	Mitigation measures for adverse impacts to sensitive plants, animals and habitats.	4.12
	Avoidance and protection of rare natural communities.	4.12

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Does not support the use of relocation, salvage and/or transplantation as mitigation for impacts to rare, threatened or endangered species.	4.12
	Areas reserved as mitigation must be conserved as habitat in perpetuity and should be protected from future direct and indirect impacts.	8.0
	Consideration of limited access, conservation easements, monitoring and management programs, control of illegal dumping, water pollution and fire in areas reserved as mitigation for project impacts.	8.0
	Restoration and revegetation plans.	4.11
	California Endangered Species Act (CESA) Permit.	4.12
	Analysis and discussion demonstrating that each impact has been minimized and fully mitigated.	8.0
	Analysis and discussion demonstrating that all mitigation measures are capable of successful implementation.	8.0
	Analysis and discussion demonstrating that adequate funding is ensured for implementation and monitoring compliance with, and effectiveness of, the mitigation measures.	8.0
	Discussion of impacts that cause a take of endangered species.	4.12
	Discussion of the proposed project's potential to jeopardize the continued existence of the species.	4.12
	Biological mitigation monitoring and reporting proposals.	8.0
	A Mitigation Agreement and Mitigation Plan for plants listed as rare and endangered under the Native Plant Protection Act.	8.0
	Measures to ensure avoidance of takes of fully protected species.	8.0
	Preservation of wetlands and water courses whether intermittent or perennial by retaining habitat and providing setbacks to preserve riparian and aquatic value.	4.10
	Lake or Streambed Alteration Agreement.	4.10
	Identification and description of all areas subject to CDFG jurisdiction.	4.10
	Potential impacts to lake, stream or riparian resources.	4.8, 4.10
	Avoidance, mitigation, monitoring and reporting commitments for issuance of the Lake or Streambed Alteration Agreement.	8.0
	Provided "Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities."	4.12
	Provided "Sensitivity of Top Priority Rare Natural Communities in Southern California."	4.12

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
California Regional Water Quality Control Board, San Diego Region (June 14, 2001)	Potential impacts to drainage patterns.	4.9
	Potential impacts to rate of surface water and runoff.	4.9
	Potential impacts to the quantity of surface water and runoff.	4.9
	Potential discharges into surface waters during or following construction.	4.9
	Potential significant alteration of water quality including, but not limited to, temperature, dissolved oxygen, turbidity or other typical urban storm water pollutants.	4.9
	Potential impacts to groundwater flow through alteration of pressure head with the aquifer or interception of groundwater flow via cuts or excavation.	4.9
	Impacts resulting in the loss or degradation of beneficial uses for water bodies.	4.9
	Mitigation measures for impacts to drainage patterns.	4.9
	Mitigation measures for impacts to rate of surface water and runoff.	4.9
	Mitigation measures for impacts to the quantity of surface water and runoff.	4.9
	Mitigation measures for discharges into surface waters during or following construction.	4.9
	Mitigation measures for significant alteration of water quality including, but not limited to, temperature, dissolved oxygen, turbidity or other typical urban storm water pollutants.	4.9
	Mitigation measures for impacts to groundwater flow through alteration of pressure head with the aquifer or interception of groundwater flow via cuts or excavation.	4.9
	Mitigation measures for impacts resulting in the loss or degradation of beneficial uses for water bodies.	4.9
	Provided information regarding regulatory requirements.	4.9
State of California Department of Conservation (July 5, 2001)	The alternatives transect a body of significant documented mineral resource deposits (MRZ-2) along the floodplain of San Juan Creek that is designated as Sector T according to the Division's Open File Report No. 94-15 "Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California – Part III – Orange County" (1994).	4.22

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Impacts associated with the loss of mineral resources.	4.22
	Impacts associated depletion of mineral resources and the increased reliance on imported aggregate.	4.22
	Mitigation for impacts associated with the loss of mineral resources.	4.22
	Mitigation for impacts associated depletion of mineral resources and the increased reliance on imported aggregate.	4.22
	Discussion of the findings of the 1975 Surface Mining and Reclamation Act (SMARA) with respect to land uses that would adversely affect access to mineral resources.	4.22
	Provided Public Resources Code Section 2763.	--
State of California Native American Heritage Commission (July 3, 2001)	Records search for the potential presence of cultural resources.	4.16
	Report detailing the findings and recommendations of the records search and field survey for and archaeological inventory survey.	4.16
	Submission of site significance and mitigation measures report to the planning department.	4.16
	Site forms and final written report should be submitted to the Information Center within three months after survey completion.	4.16
	A Sacred Lands File Check from the Native American Heritage Commission.	4.16
	A list of appropriate Native American Contacts from the Native American Heritage Commission for consultation concerning the project site and assistance in mitigation.	4.16
	Provisions for accidental discovery of archaeological resources.	4.16
	Provisions for discovery of Native American human remains.	4.16
Summary of Comments from Regional Agencies on the Notice of Preparation		
South Coast Air Quality Management District (AQMD, June 28, 2001)	Identification potential adverse air quality impacts from all of the project phases.	4.7, 4.26
	Identification of air pollutant sources related to the project.	4.7
	Construction related air quality impacts.	4.7
	Operations related air quality impacts.	4.7
	Air quality impacts from indirect sources.	4.7
	Analysis of all toxic air contaminant impacts due to decommissioning or use of equipment.	4.7
	Mitigation measures for impacts to air quality.	4.7

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Requests that the lead agency refer to Chapter 11 of the AQMD CEQA Air Quality Handbook for sample mitigation.	4.7
	Requests that measures for controlling construction related emissions from AQMD's Rule 403 – Fugitive Dust and the Implementation Handbook be considered for use as CEQA mitigation.	4.7
	Discussion of impacts resulting from mitigation measures.	4.7
	AQMD rules and relevant air quality reports and data are available from the AQMD's Public Information Center.	4.7
San Diego Association of Governments (July 5, 2001)	For the build and no-build alternatives, a 2030 volume/capacity analysis on I-5 from the San Diego/Orange County Line to State Route 78.	3.0
	Assessment of impacts to wetlands and habitat in San Diego County.	4.10
	Mitigation of impacts to wetlands and habitat in San Diego County.	4.10
	Assessment of impacts of the FEC Alternative on San Onofre State Beach.	4.15
	Mitigation of impacts of the FEC Alternative on San Onofre State Beach.	4.15
Southern California Association of Governments (SCAG, June 25, 2001)	Discussion of inconsistencies between the proposed project and applicable general plans and regional plans.	4.2
	Consistency with Regional Comprehensive Plan and Guide policies.	4.2
	Inclusion of the most current SCAG forecasts which are the 2001 Regional Transportation Plan (RTP) (April 2001) Population, Household and Employment forecasts for the Orange County Council of Governments subregion.	2.0, 3.0
	Requests that transportation investments be based on SCAG's adopted Regional Performance Indicators.	2.0
	Mitigation of environmental impacts to an acceptable level.	8.0
	Requests that Transportation Control Measures be a priority.	2.0
	Requests that new freeway facilities be open for goods movement.	2.0
	Requests that tolled highway facilities be designed, operated and priced to encourage use of public and private transit, carpools, vanpools and other high occupancy vehicles (HOVs).	2.0
	Requests that maintenance and operation be a priority over expanding capacity.	2.0

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Requests that patterns of urban development and land use that reduce costs on infrastructure and make better use of existing facilities.	--
	Requests support of local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery.	2.0
	Requests support of local jurisdictions' efforts to seek sources of funding for development and provision of services.	2.0
	Requests support of local jurisdictions actions to minimize red tape and expedite the permitting process.	1.0
	Requests that the proposed project encourage planned development in locations least likely to cause environmental impact.	4.0
	Requests support of protection of vital resources.	4.22
	Measures aimed at the preservation and protection of cultural resources and archaeological sites.	4.16
	Discourage development or encourage the use of special design requirements.	6.0
	Mitigation that reduces noise.	8.0
	Mitigation aimed at the preservation of biological and ecological resources.	8.0
	Mitigation that would reduce exposure to seismic hazards.	4.20
	Mitigation that minimizes earthquake damage.	4.20
	Emergency response and recovery plans.	4.24
	Air quality specific programs and associated actions needed.	4.7
	Consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.	4.0
	Requests that the proposed project encourage water reclamation.	4.24
	Address current impediments to increased use of wastewater.	4.24
Summary of Comments from Special Districts on the Notice of Preparation		
Saddleback Valley Unified School District (June 19, 2001)	Direct take of land from Mission Viejo High School with I-5 widening.	4.24
Summary of Comments from Local Agencies and Cities on the Notice of Preparation		
County of Orange Planning and Development Services Department (PFRD, July 16, 2001)	Identification of affected drainage facilities.	4.9
	Maps and exhibits of drainage facilities and watersheds.	4.9
	Drainage Facility Basemaps are available for purchase from PFRD/Central Files.	4.9
	Discussion of increases in runoff.	4.9

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Discussion of potential changes in drainage patterns.	4.9
	Discussion of effect on the capacity of existing drainage facilities.	4.9
	Discussion of potential flooding of downstream areas.	4.8
	Discussion of impact on existing floodplains.	4.8
	Discussion of effect on water quality.	4.9
	Discussion of any stormwater diversions.	4.9
	Existing condition hydrologic and hydraulic analysis.	4.8
	Post-project condition hydrologic and hydraulic analysis.	4.8
	Post-project condition hydrologic and hydraulic analysis.	4.8
	Use of OCFCD's methodology, criteria and standards in the 1996 Orange County Hydrology Manual (OCHM), Addendum No.1 to the OCHM, and the Orange County Flood Control Design Manual.	4.8
	Requests submission of analyses with all calculations, computer models, exhibits, scaleable hydrology and land use maps, and other study related information to PFRD/Program Developmental Division for approval.	4.8
	Request that high confidence ultimate condition discharges, if any proposed flood control facilities will be given to the County of Orange or OCFCD, or expected value discharges be used to determine incremental increases in peak discharges for implementing development mitigation requirements.	4.8
	Requests copies of prior technical studies used to address project impacts.	--
	Design and construction techniques that implement recent technologies for maintaining stream stability.	4.8
	Design and construction techniques that implement recent technologies for road runoff and pollution prevention.	4.9
	Design and construction techniques that implement recent technologies for computer controlled high efficiency landscape irrigation systems.	4.9
	Design and construction techniques that implement recent technologies for native vegetation landscaping.	4.12
	Design and construction techniques that implement recent technologies for flood damage reduction.	4.8

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Design and construction techniques that implement recent technologies for riparian species passages.	4.11
	Requests that if alternatives in the San Juan Creek Watershed are approved that the TCA collaborate with the County to obtain environmental restoration funds from the FHWA.	4.8
	Discussion of short term construction impacts and long term impacts to Thomas F. Riley Wilderness Park.	4.25
	Mitigation measures for short term construction impacts and long term impacts to proposed Prima Deshecha Regional Park.	4.25
	Requests that impacts identified include aesthetics, noise, light, dust, operation, infrastructure and flora.	4.0
	Discussion of short term construction impacts and long term impacts to existing and proposed Wagon Wheel Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to existing and proposed Wagon Wheel Trail.	4.5
	Discussion of short term construction impacts and long term impacts to existing Tijeras Creek Trail.	4.5
	Discussion of short term construction impacts and long term impacts to existing Arroyo Trabuco Trail.	4.5
	Discussion of short term construction impacts and long term impacts to existing Bell View Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed San Juan Creek Trail.	4.5
	Mitigation measures for short term construction impacts and long term impacts to existing Bell View Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Cristianitos Trail.	4.5
	Mitigation measures for short term construction impacts and long term impacts to proposed Cristianitos Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Prima Deshecha Trail.	4.5
	Mitigation measures for short term construction impacts and long term impacts to proposed Prima Deshecha Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Prima Deshecha Staging Area.	4.5

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Mitigation measures for short term construction impacts and long term impacts to proposed Prima Deshecha Staging Area.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Avenida Pico Staging Area.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Trabuco Creek Bikeway.	4.5
	Mitigation measures for short term construction impacts and long term impacts to proposed Trabuco Creek Bikeway.	4.5
	Discussion of short term construction impacts and long term impacts to proposed San Juan Creek Bikeway.	4.5
	Mitigation measures for short-term construction impacts and long term impacts to proposed San Juan Creek Bikeway.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Pico Bikeway.	4.5
	Mitigation measures for short term construction impacts and long term impacts to proposed Pico Bikeway.	4.5
	Discussion of short term construction impacts and long term impacts to proposed San Clemente Coastal Bikeway.	
	Mitigation measures for short term construction impacts and long term impacts to proposed San Clemente Coastal Bikeway.	4.5
	Assessment of the need for grade-separated crossings where existing and proposed trails and bikeways intersect the proposed alternatives.	4.5
	Coordination with Orange County and the affected land owners in the area.	4.2
	Traffic study.	3.0
County of Orange Public Facilities and Resources Department (July 2, 2001)	Analysis of conflict of right of way with the current agreement with DMB/Ladera, Inc.	4.4
	Impacts to sensitive wildlife and habitat areas in the Las Flores and Ladera Planned Communities (PC).	4.11
	Magnitude of and mitigation for landform alteration.	4.20
	Magnitude of and mitigation for habitat impacts.	4.11
	Impacts to recently built and occupied homes in Planning Area 1 of the Ladera PC.	4.4
	Impacts to the commercial site in Planning Area 8 of Las Flores PC.	4.4

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Analysis of difficulty widening La Pata Avenue where it traverses the Prima Deshecha Landfill.	4.4, 4.24
	Definition of the Arterial Improvements Alternative.	2.0
	Impacts to Prima Deshecha Landfill and proposed Prima Deshecha Regional Park.	4.24, 4.25
	Preference for the Arterial Improvements Alternative.	2.0
County of Orange Public Facilities and Resources Department (July 6, 2001)	Discussion of short term construction impacts and long term impacts to existing and proposed Wagon Wheel Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to existing and proposed Wagon Wheel Trail.	4.5
	Discussion of short term construction impacts and long term impacts to existing Tijeras Creek Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to existing Tijeras Creek Trail.	4.5
	Discussion of short term construction impacts and long term impacts to existing Arroyo Trabuco Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to existing Arroyo Trabuco Trail.	4.5
	Discussion of short term construction impacts and long term impacts to existing Bell View Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed San Juan Creek Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to existing Bell View Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Cristianitos Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed Cristianitos Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Prima Deshecha Trail.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed Prima Deshecha Trail.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Prima Deshecha Staging Area.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed Prima Deshecha Staging Area.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Avenida Pico Staging Area.	4.5

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Mitigation for short term construction impacts and long term impacts to proposed Avenida Pico Staging Area.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Trabuco Creek Bikeway.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed Trabuco Creek Bikeway.	4.5
	Discussion of short term construction impacts and long term impacts to proposed San Juan Creek Bikeway.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed San Juan Creek Bikeway.	4.5
	Discussion of short term construction impacts and long term impacts to proposed Pico Bikeway.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed Pico Bikeway.	4.5
	Discussion of short term construction impacts and long term impacts to proposed San Clemente Coastal Bikeway.	4.5
	Mitigation for short term construction impacts and long term impacts to proposed San Clemente Coastal Bikeway.	4.5
	Assessment of the need for grade-separated crossings where existing and proposed trails and bikeways intersect the proposed alternatives.	4.5
Airport Land Use Commission for Orange County (June 26, 2001)	Requested address change.	--
City of Rancho Santa Margarita (July 13, 2001)	Wants to be kept informed about the project.	--
City of Irvine (July 11, 2001)	Location of the I-5 Widening Alternative northern boundary and proposed terminus is unclear.	2.0
	Widening impacts of I-5 in the City of Irvine.	3.0, 4.0
	Anticipated horizon years with tolls and without tolls.	3.0
	Forecast data used to determine I-5, without construction of FTC South, will be equivalent of four lanes.	3.0
City of San Clemente Community Development Department (July 10, 2001)	Request for future information.	--
	Impacts on habitat areas easterly and southerly of the City of San Clemente.	4.11
	Social and economic effects of all alternatives.	4.4
	Consequences related to the No Action Alternative.	3.0, 4.0

TABLE 11.6-4
SUMMARY OF COMMENTS FROM AGENCIES IN RESPONSE TO THE NOTICE OF PREPARATION

Agency/Commentor	Comments	EIS/SEIR Section
	Required arterial street improvements in case of No Action Alternative.	2.0
	Funding of No Action Alternative.	2.0
	Limits to development and acquirement of developable property if additional capacity cannot be created.	6.0
City of Mission Viejo (July 5, 2001)	Request for future information.	--
	Comments will be transmitted in the near future.	--
City of La Habra (July 16, 2001)	Request for a copy of the EIR.	--
	No concerns at the present.	--
City of Dana Point (July 24, 2001)	Impacts and mitigation measures of I-5 on City residents.	3.0, 4.0
	Meeting for City residents.	11.0
	Provision for I-5 included for planning purposes only.	2.0
	Jurisdiction of I-5 by Caltrans.	2.0
City of Laguna Woods (July 18, 2001)	No comments.	--
City of Lake Forest (August 6, 2001)	Request for Socioeconomics Technical Report.	4.4
	Additional right-of-way and changes required at interchanges at I-5 and El Toro Road and Lake Forest as a part of Arterial Improvements Only and I-5.	4.4
	Request for the Draft Subsequent EIR.	--

TABLE 11.6-5
LIST OF GROUPS, ORGANIZATIONS AND MEMBERS OF THE GENERAL PUBLIC WHO COMMENTED IN THE RESPONSE TO NOP

Juaneno Band of Mission Indians	Sierra Club, Angeles Chapter	Natural Resources Defense
The Irvine Company	San Diego County Archaeological Society	Rancho Mission Viejo
Aegean Hills Homeowners Association	Pacifica San Clemente Homeowners Association	Meredith Canyon Community Association
Ann Zemer	Shawn Mesbah	C. David and M. Andriette Culbertson
John T. Ezell	James F. Ignacek	Thomas R. Youngerman
Don Kunze	Elizabeth M. Venclik	Alfonso Rodaarte
Lauren Spilsbury	Jack and Virginia Severs	Jack Delman
Ron Belle	Wilma and Ford Dickerhoff	Mr. and Mrs. Franck Seres
Daniel and Diane Roach	Jamie Andrew	Fred and Ann Havens
Mildred Anderson	Gina M. Milia	Vincent V. Russo
Dr. Robert Roper	Blue Sky Properties	Gloria M. Portner
Bruce M. and Kari F. Gibson	Paul Thomsen	Fien-Line Associates
Paul E. Radcliffe	Diane M. Arnold	Vincent R. Van Pelt
John Hockins	Kirk C. Barrus	Robert H. Harnar
Richard O. Pick	Arturo L. Fontanes	W.C. Woody Stingley
Walter L. Dieckmann	Ning Ru and Jenni Yim	Catherine E. Paquette
Maria Delegan	Katy Smiser	Zain Simonson
Dorothy and Lester Gerle	Michael Harris	Jeffrey S. Hansen
Donald M. Thompson	George Allen	Carmen Z. Everett
No name	Richard E. and Joanne C. Gates	William Stenzel
Charles F. Verre	Arthur H. Chasin	Ronald H. Baker
John Moore	Daniel J. Alfonso	John Tengdin
Simon G. Zervos		

TABLE 11.6-6
SUMMARY OF COMMENTS FROM GROUPS, ORGANIZATION AND MEMBERS OF THE GENERAL PUBLIC IN RESPONSE TO THE NOTICE OF PREPARATION

Section/Sections in the EIS/SEIR Where Comments Are Addressed	Comments
Comments Related to Cultural and Paleontological Resources	
4.16	Disturbance and destruction of any traditional, Indian cultural villages and burial sites.
--	Request for future contact.
4.16	Contact the Ajachemen tribe for impacts on cultural resources
4.16	Mitigation to cultural resources that are significant under CEQA.
4.16	Data in and date of cultural resources.
4.16	Indian spokesman spoken to.
4.16	Data in paleontological resources.
Comments Related to Traffic	
3.0	New independent, peer-reviewed traffic study to include expected number of San Clemente residents using the toll road, number of trips versus non toll road use, additional traffic generated by the toll road in Inland Empire communities and San Diego County, impact on I-5 between San Clemente and Oceanside from additional traffic, assumptions made with I-5, impact study on San Clemente from the bottleneck from merging traffic on I-5 and the toll road, attention to 15 mile distance of no exits as toll road runs through Camp Pendleton, impact of the bottleneck on evacuation plans and emergency vehicle access in case of San Onofre Nuclear Generating Station disaster, impacts on traffic congestion from agreements between Caltrans and the TCA regarding construction on highway limits near the toll road, split traffic figures into truck and automobile trips.
3.0	Traffic impacts through 2025 of all alternatives on the proposed El Toro airport. Including anticipated uses of toll road by the airport both direct and indirect.
3.4	Impact on traffic flow in surrounding communities.
3.0, 6.0	Impacts of toll road induced growth on traffic.
3.4	Impact on traffic along Camino Las Ramblas.
3.4	Significant traffic impact.
3.2	Data in and date of transportation/traffic.
3.0	Inability of project to relieve I-5 congestion.
Comments Related to Recreation Resources	
4.25	Recreation impacts.
4.25	Impact on San Onofre Sate Park and San Mateo Campground.
4.25	Mitigation for loss of San Mateo Campground must also serve as mitigation for loss of San Onofre public beach.
4.25	Data in parklands and resources.
4.25	Division of park lands.
Comments Related to Biological Resources	
4.11	Impacts and mitigation measures on the coastal sage scrub NCCP.
4.12	Impact on endangered and rare habitat and special aquatic sites.
4.11	Impact on natural habitat from fertilizers and non-native organisms.
4.11	Impact on wildlife and corridors.
4.8, 4.11	Impacts on natural and beneficial floodplain values.
4.10	Potential significant impact on federally protected wetlands.
4.12	Impacts on steelhead trout migration in San Mateo Creek.

TABLE 11.6-6
SUMMARY OF COMMENTS FROM GROUPS, ORGANIZATION AND MEMBERS OF THE GENERAL PUBLIC IN RESPONSE TO THE NOTICE OF PREPARATION

Section/Sections in the EIS/SEIR Where Comments Are Addressed	Comments
4.8	Potentially significant impact on San Mateo Creek.
4.10, 4.11, 4.12	Data in and date of biological resources.
4.11	Health of breeding animals living in wildlife corridor.
4.11	Division of wildlife communities.
4.11	Significant impact on conservation areas.
Comments Related to Socioeconomics	
4.4	Impact on residential and business development.
4.4	Direct and indirect impacts on local tourism businesses from growth inducement.
4.4	Location of existing housing units that are proposed to be acquired.
4.4, 6.0	Data in socioeconomics and growth inducement.
4.4	Data in relocation impacts.
Comments Related to Air Quality and Noise	
4.6	Impact on noise pollution in surrounding communities.
4.6	Intolerable noise levels.
4.6	Data in and date of noise.
4.6	Protection by a sound wall in impacted areas.
4.6	Sound walls.
Comments Related to Air Quality	
4.7	Impact on air pollution in surrounding communities.
4.7	Data in and date of air quality.
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4.8	Impact on watersheds and ocean water quality from run-off and non-point source pollution.
4.8	Impact on housing developments from 100-year flood hazard area from growth inducement.
4.8, 4.9	Data in and date of hydrology and water quality.
4.9	Stream pollution.
4.8	Data in location hydraulics.
4.9	Data in Runoff Management Plan.
4.9	Impact on aquifer, groundwater and stream water quality.
4.9	Direct and indirect impacts on local tourism businesses from water quality impacts and growth inducement.
Comments Related to Construction Impacts	
4.0	Construction impacts.
4.24	Impacts of waste material during construction.
Comments Related to Aesthetics	
4.18	Aesthetic impacts that are potentially significant on scenic resources.
4.18	Data in and date of aesthetics.
Comments Related to Land Use	
4.2	General plans and zoning designations the toll road will cross.
4.2	Impacts of I-5 and AIO on all lands.
4.2	Impact of alternatives on existing and planned development in the City of Irvine.
4.2	Impact on parking capacity in the Irvine Auto Center and Spectrum 5.
4.2, 4.3	Loss of agricultural land.
4.2	Data in and date of land use planning.

TABLE 11.6-6
SUMMARY OF COMMENTS FROM GROUPS, ORGANIZATION AND MEMBERS OF THE GENERAL PUBLIC IN RESPONSE TO THE NOTICE OF PREPARATION

Section/Sections in the EIS/SEIR Where Comments Are Addressed	Comments
6.0	Relationship between proposed facilities and possible growth.
4.2	Considering alternatives in context of existing general plans of relevant jurisdictions.
Comments Related to Earth Resources	
4.20	Area within ancient landslide territory.
4.20	Significant impact on geology and soil.
4.20	Data in geotechnology, geology and soils.
Comments Related to Hazardous Materials and Wastes	
4.17	Data in and date of hazards and hazardous materials.
4.17	Data in hazards and hazardous materials.
Other Comments	
4.0	Impacts on the environment of each alternative.
ES	Addition of the NMFS to list of other public agencies whose approval is required.
--	Request for a copy of the Draft EIR.
--	Request for a copy of the Cultural Resources Technical Report.
2.0	Financing of the Foothill Transportation Corridor South.
ES	Joint preparation and issuance of the SEIR by FHWA and the TCA.
11.0	Public scoping meetings held by TCA.
2.0	More efficient movement of goods on toll roads.
3.0	Correlations independent from the TCA.
--	Findings from 1980 to 1989.
4.0	The effect on the Calle Portola area.
2.0	Distance of proposed widening with I-5 Alternative.
2.0	Estimated timeline of project.
2.0	New route east of FEC Alternative.
4.24	Data in public services and utilities.
4.21	Data in military impacts.
--	Request to be removed from mailing list.
Comments Which State Opinions or Discuss Issues Which are Not Environmental Issues Under CEQA And NEPA	
--	Opposition against entire project.
--	Support for I-5.
--	Opposition against AIO and I-5.
--	Support for the FEC Alternative.
--	Opposed to the AIO, CC and A7C Alternatives.
--	Support for I-5 and CC Alternatives.
--	Support for FEC-C, FEC-AFV, FEC-CV and A7C-FECV Alternatives and opposed to the FEC-TV, FEC-OHV, FEC-APV, all CC options, A7C-C, A7C-7SV, A7C-OHV, A7C-ALPV AIO, I-5 and No Action Alternatives.
--	All alternatives are unacceptable except FEC.
--	Support for A7C-FECV Alternative.
--	Opposition against extending Toll Road 241.
--	Support for Agricultural Fields Variations.
--	Support for the FEC without the Talega Variation.
--	Opposition against Talega Variations.
--	Support for FEC-CV Alternative.

TABLE 11.6-6
SUMMARY OF COMMENTS FROM GROUPS, ORGANIZATION AND MEMBERS OF THE GENERAL PUBLIC IN RESPONSE TO THE NOTICE OF PREPARATION

Section/Sections in the EIS/SEIR Where Comments Are Addressed	Comments
--	Opposition against FEC-APV Alternative.
--	Support for A7C-FECV Alternative and opposition against A7C Alternative.
--	Support for FEC-AFV Alternative and opposition against I-5 Alternative.
--	Support for FEC, FEC-AFV, A7C-FECV and No Action Alternatives.
--	Opposition against routes through established areas of San Clemente and surrounding areas.
--	Support for an alternative through a far east location.
--	Support for entire project.
--	Support for I-5 and AIO Alternatives and opposition against FEC, CC and A7C Alternatives.
--	Support for FEC Alternative and opposition against the CC Alternative.
--	Support for A7C Alternative.
--	Support for FEC-AFV and A7C-FECV Alternatives.
--	Support for AIO Alternative.
--	Support for FEC, FEC-CV, FEC-OHV and FEC-APV Alternatives and opposition against FEC-AFV, FEC-TV, all CC options, all A7C options, AIO, I-5 and No Action Alternatives.
--	Support for CC Alternative.
--	Support for FEC and No Action Alternatives.
--	Support for FEC-AFV and FEC-APV Alternatives.
--	Support for AIP Alternative.
--	Support for A7C Alternative.
--	Support for I-5, AIO and FEC without Talega Variation Alternatives.
--	Support for FEC, A7C and CC Alternatives and opposition against AIP Alternative.
--	Opposition against I-5 Alternative.

TABLE 11.6-7
SUMMARY OF COMMENTS IN RESPONSE TO THE NOTICE OF INTENT

Agency/Commentor	Comments	EIS/SEIR Section
United States Environmental Protection Agency (March 29, 2001)	• Incorporation of previous studies and input. • Evaluation criteria for traffic and water resources. • Traffic analysis, assumption and presentation of data. • Definition of the No Action Alternative. • Cumulative impacts. • Growth inducement. • Air quality, full consideration of all alternatives. • Add "Areas of Controversy" to the EIS Summary. • Environmental Justice. • Use of recycled materials.	2.0, 3.0, 4.0, 5.0, 6.0
United States Department of the Interior Fish and Wildlife Service (April 17, 2001).	No additional comments, beyond comments already provided through the Collaborative process.	--
Center for Biological Diversity (May 10, 2001).	• Opposed to the toll road. • Impacts on listed species. • Water quality. • Impacts on the State Park.	4.9, 4.12, 4.25
Natural Resources Defense Council (May 9, 2001).	• Impacts on protected species. • Water quality impacts.	4.12, 4.9
	• Induced growth. • Impacts on parkland at the State Park.	6.0, 4.25
	• Impacts on Trestles Beach. • Affects on congestion.	4.9, 3.0
	• San Mateo Creek habitat. • Alternatives to the corridor.	4.12, 2.0
	• Need for the project. • Local and regional air quality.	1.0, 4.7
	• Cumulative and indirect impacts. • Compliance with the federal Endangered Species Act.	5.0, 4.12
	• Compliance with Section 4(f) of the Transportation Act of 1966.	Appendix H
Endangered Habitats League (March 19, 2001)	• Traffic forecasting. • Measures of effectiveness. • Alternatives. • Ecological units. • Ecological functions. • Disturbance regimes (fire, flood, sediment transport). • Growth inducement. • Induced traffic. • Rare, threatened and endangered species. • Water quality. • Animal and plant habitats. • Wildlife movement. • Parks.	3.0, 2.0, 4.12, 5.0, 4.9, 4.11, 4.25

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13.1 REFERENCES FOR THE EIS/SEIR

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13.2 CONTACTS

The following were contacted during the preparation of this EIS/SEIR and the technical reports for the analysis of the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP) alternatives.

California Highway Patrol: Lt. Steve Deck.

Capistrano Unified School District: Cary Brockman, Director of Facilities Planning.

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City of Laguna Hills
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City of Laguna Niguel
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County of Orange Assessor's Office: Ron Terranova, Appraiser II.

County of Orange Assessor's Office: Randy Lee.

Deutscher, Tim, Golf Course Supervisor, Mission Viejo Golf Course, personal contact (August 7, 2001).

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Irvine Unified School District: Bridgette Campos, Facilities.

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Lifelong Learning: Sandra Jensen, Assistant Branch Manager.

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Maloy, Julie, Associate Planner, City of Laguna Hills, personal contact (August 6, 2001).

Marbella Golf and Country Club Main Office, personal contact (August 8, 2001).

Marine Corps Base Camp Pendleton:
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Jay Carey, Environmental Security.
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Scott Thomas, Environmental Security.
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Ted Thomas, Base Facilities.
Terry Finch, Base Operations & Training.

Mission Viejo Library: Cindy Sands.

Orange County Fire Authority (OCFA): Michael Rohde, Battalion Chief, Advance Planning.

Orange County Integrated Waste Management Department: Robert Richmond, Planner IV, Regulatory Compliance.

Orange County Public Library System: Dave Sankey for Bob Genzel.

Orange County Transportation Authority (OCTA): Shirley Hsaio, Senior Transportation Analyst

Planning Solutions: Jay Bullock.

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Rancho Mission Viejo: Laura Coley-Eisenberg.

San Juan Hills Country Club Shop Assistant, personal contact (August 7, 2001).

Southern California Association of Governments: Javier Minjares, GIS/Data Base.

State of California Department of Parks and Recreation:

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Richard Rozzelle, Technical Services Manager, Orange Coast District.

Talega Golf Course Assistant Professional, personal contact (August 6, 2001).

The South Campus of the Crystal Cathedral Ministries: Cheryl Ellison, Chief Operating Director.

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Erik Larsen, Ecologist/Project Manager

United States Department of Agriculture Natural Resources Conservation Service: Erica Szlosek.

United States Fish and Wildlife Service (USFWS)
David Zoutendyk, Biologist

13.3 INTERNET SITES

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13.4 ADDITIONAL REFERENCES

In addition to the references listed in Section 13.1, additional references were used in the preparation of the technical reports for the analysis of the SOCTIIP. Those additional references are listed in each technical report. Refer to the Table of Contents for locations where the individual Technical Reports are available for review or purchase. The technical reports for the SOCTIIP are:

Air Quality Technical Report (Mestre Greve Associates, 2003).

Geotechnical, Geology and Soils Technical Report (GeoPentech, 2003).

Hazardous Materials and Wastes Technical Report (P&D Consultants, 2003).

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